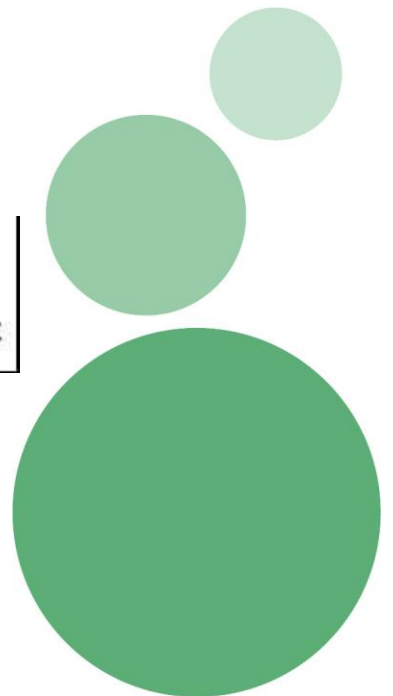# EU level Collaboration on Forecasting Health Workforce Needs, Workforce Planning and Health Workforce Trends – A Feasibility Study

REVISED FINAL REPORT

29 May 2012

Written by:

Matrix Insight

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1.0   Introduction

This document contains the Final Report for the "Feasibility Study on Health Workforce". The study aimed to **identify EU level actions that could support the Member States in assessing, forecasting and planning their health workforce needs.** The terms of reference specify the following three principal research questions, the answer to which will provide an evidence base to support the identification of options for EU-level action:

1. *Can robust and timely data to support workforce planning be obtained at EU level?*

2. *Can workforce planning and monitoring health workforce trends be made operational across countries?*

3. *What would be the benefits and limits of EU collaboration on health workforce?*

The figure below provides an overview of the study design.

Figure 1 – Overview of Study Design
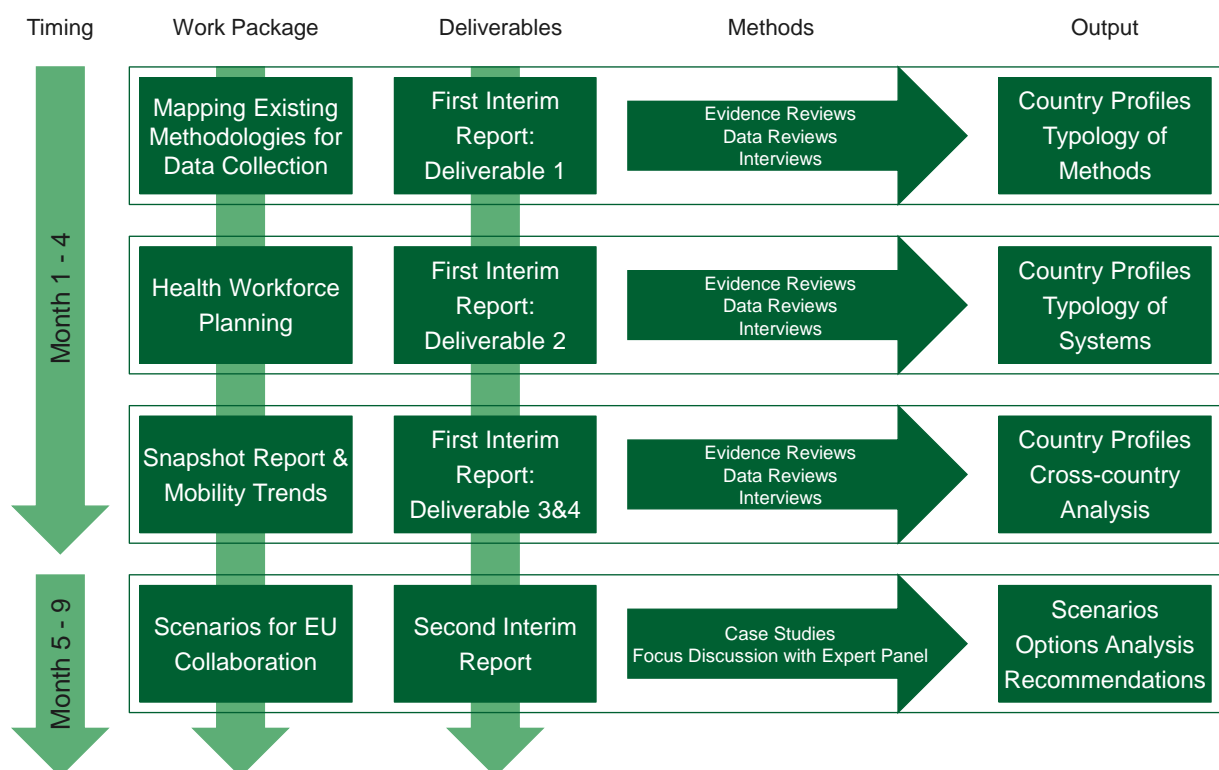
1.1   Study Objectives

The Feasibility Study on EU level collaboration on forecasting health workforce needs, workforce planning and health workforce trends' (*henceforth* the feasibility study) aims to provide research support to the Member States, both in the preparatory and, eventually, in the delivery phase of the EU Joint Action on Health Workforce Planning and Forecasting (*henceforth* EU Joint Action) for the years 2013-2015 (further described in Section 1.2).

The contractor (Matrix Insight Ltd) has been commissioned by the Executive Agency for Health and Consumers (EAHC), through a Request for Specific Services[1]. The content and scope of the feasibility study are defined by Tender Specifications. While the contractor will respond to the research questions identified in the Tender Specification, it will also aim to ensure that the feasibility study provides the necessary research support to the EU Joint Action and the participating Member States. The EU Joint Action participants are welcome to use the evidence provided in this feasibility study to inform their work, as they see fit.

This final report aims to present the **findings of all deliverables (1 to 5)**, as outlined in the first interim report (deliverables 1 to 4) and in the second interim report (deliverable 5). The outputs of the previous deliverables and, in particular, the recommendations on EU level collaboration have been discussed with the expert panel during a **focus discussion** held on 23 January 2012. As a result of this discussion, some of the aspects of the proposed scenarios for collaboration have been revised and developed further. This final report also takes into consideration the comments provided by the Commission during the draft final report review meeting, held in Brussels on 1 February 2012.

1.2   EU Joint Action on Health Workforce Planning

The **2012 Work Plan, serving as a financing decision, in the framework of the second programme of Community action in the field of health (2008-2013)[2]** has defined the objectives of the EU Joint Action on Health Workforce Planning (*henceforth* EU Joint Action), which include:

- Provide information and exchange best practices about planning methodologies in use;

- Estimate future needs in terms of skills and competences of the health workforce and their distribution;

- Advise on how workforce-planning capacities can be built up in Member States;

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[1] EAHC/Health/2011/07 for the implementation of Framework Contract N EAHC/2010/Health/01 to Support the Health Information Strategy (lot 1)
[2] Commission Implementing Decision of 1 December 2011 on the adoption of the 2012 work plan, serving as a financing decision, in the framework of the second programme of Community action in the field of health (2008-2013), the selection, award and other criteria for financial contributions to the actions of this programme and on the EU payment to the WHO Framework Convention on Tobacco Control (2001/C 358/06)

- Develop EU guidance on how donor and receiving countries can cooperate in order to find a mutually beneficial solution in terms of training capacities and circular mobility (2014-2015);

- Provide information on mobility trends of health professionals in Member States (2013-2015).

The Commission organised two preparatory meetings with the Member States in June and September 2011 in order to launch the preparatory work for the EU Joint Action. As part of this preparatory process, a discussion document was drafted outlining the main objectives and work packages to be proposed in the EU Joint Action. The document proposes 7 work packages, including 3 horizontal streams (coordination, evaluation and dissemination) and 4 substantive vertical streams.

The figure below shows how the proposed work packages cover all three levels of workforce planning, from collecting information and data to generating knowledge for informed policy decisions to feeding into strategic choices over longer term direction of the workforce planning system. This feasibility study aims to provide research support to the Member States, both in the preparatory and, eventually, in the delivery phase of the EU Joint Action on Health Workforce Planning and Forecasting for the years 2013-2015.

Figure 2 – Links between the Proposed Work Packages in the EU Joint Action
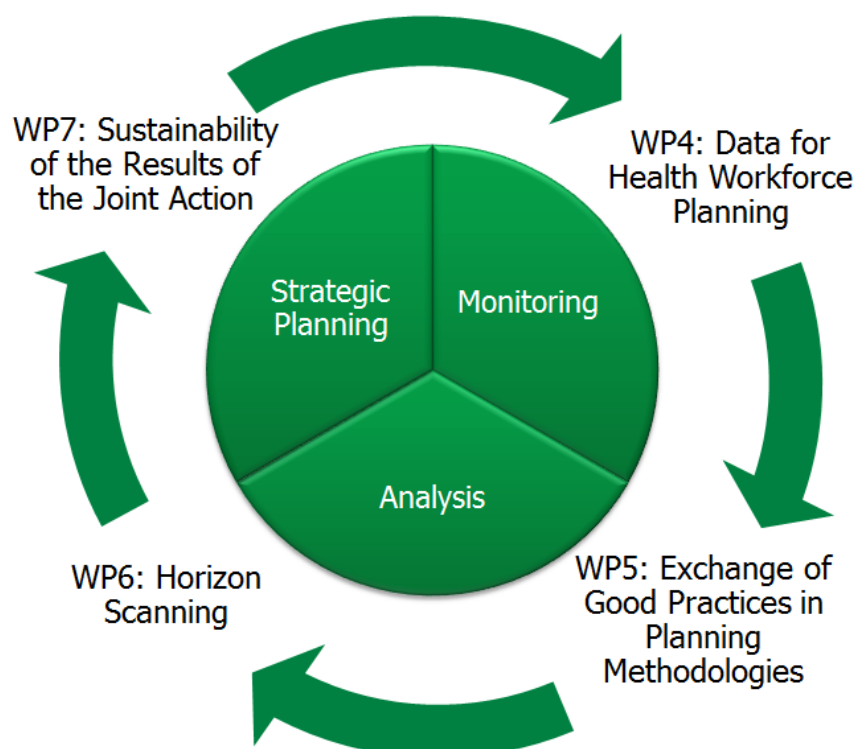
1.3   Structure of the Report

The remainder of the report is structured as follows:

- **Section 2** outlines our understanding of the background and the policy context to this assignment;

- **Section 3** presents the mapping of existing data collection methodologies (*Deliverable 1)*;

- **Section 4** provides a snapshot of the workforce composition across the EU (*Deliverable 3*);

- **Section 5** looks at trends in mobility of health workforce, both from a professional and a geographical perspective (*Deliverable 4)*;

- **Section 6** provides an overview of health workforce planning institutions and structures (*Deliverable 2);* and

- **Section 7 and 8** discuss the European dimension of health workforce planning, and outline different scenarios for collaboration among European countries on health workforce planning (*Deliverable 5)*.

The methodological approach to the feasibility study, the country profiles, used to collect information on the existing situation in European countries, and the case studies, used to collect stakeholders' opinions on EU level collaboration, are provided in a separate document called 'Appendices'.

2.0   Background and Context

Health care systems across Europe are faced with major challenges. The needs for health services are evolving, as demographic (age and sex structure), epidemiologic, cultural and social profiles of the population change. The demand for services is also varying under the pressure of factors such as changing users' expectations, migration of populations, technological innovations and organizational innovations aiming to improve the performance of health care systems (Dussault et al, 2010).

Changes in the demand for health care are accentuating the need for a flexible and responsive health workforce. Human resources for health are also evolving: socio-demographic changes (e.g. ageing), the feminization of certain occupations and different expectations in terms of quality of life have an impact on labour market participation and on productivity (Dussault et al, 2010). In addition, recruitment in the health sector faces severe competition from other sectors and from other countries, following the process of integration of EU countries and the removal of many barriers to professional mobility (Rechel B. et al, 2006).

These challenges have been deepened by the financial pressures faced by health systems across the world. The financial crisis of 2008/2009 and the subsequent fiscal austerity policies introduced by many governments have created concerns that public health and health systems will be adversely affected.[3] Thus, policy makers are increasingly concerned about the sustainability of their systems. In particular, health ministers seek evidence that can inform decision-making and negotiations at the highest political levels about how to maximise health system efficiency during a period of budget constraint.

Policy makers should be increasingly aware of the need to assess and adjust the supply of health workers. Taking into consideration the challenges described above, there are reasons to believe that the future supply of health workforce might not be sufficient to meet the demand for healthcare. Moreover, the skill mix of health workforce might not be adequate to tackle some of the key challenges and key changes in demand for health care.

2.1   Shortage in Health Workforce

Health care is labour intensive. **Approximately 10 per cent of the active EU workforce is engaged in the health sector in its widest sense**, including physicians, nurses, pharmacists, administrative and supportive staff, researchers, teachers and trainees (Sermeus, W and Bruyneel, L., 2010). Moreover, approximately 70 per cent of the healthcare budgets are allocated to salaries and other charges related directly to employment of the health workforce (Dubois et al, 2006). Nonetheless, it appears that, taking into consideration some of the challenges described above, future supply of health workforce will not be sufficient to meet the future demand for healthcare.

The European Commission estimates the **gap in supply of human resources in health by 2020 to be approximately 1,000,000 health professionals[4]**, including physicians, dentists,

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[3] http://www.euro.who.int/en/who-we-are/partners/observatory/activities/research-studies-and-projects/the-impact-of-financial-crisis-on-health-systems-in-europe
[4] Commission internal estimates

pharmacists, physiotherapists and nurses. Ultimately, such a shortage would mean that **almost 15% of demand for healthcare across the EU will not be covered by the available workforce.** Table 1 below presents one of the future scenarios developed internally by the European Commission.

Forecasting possible future shortages in the health sector is extremely challenging even at the national level: multiple aspects and scenarios have to be taken into consideration and comprehensive and comparable data are required. Developing such estimates at the European level is even more challenging, due to the limited data availability and due to the different national contexts. On multiple occasions, stakeholders have raised doubts about the robustness of this estimate and the methodology used to calculate it. Further research should be carried out, possibly as part of the EU Joint Action, in order to obtain more robust estimates at the EU level on possible future shortages of health workforce (see Section 7.5).

Table 1 – Gap in Health Workforce Supply

Health Professionals or Other Health Workers	Estimated Shortages by 2020	Estimated Percentage of Care not Covered
Physicians	230,000	13.5%
Dentists, Pharmacists and Physiotherapists	150,000	13.5%
Nurses	590,000	14.0%
Total	970,000	13.8%

SOURCE: European Commission, Internal estimates

Shortages in the health workforce might be influenced and exacerbated by the ongoing process of integration of EU countries and the removal of many barriers to professional mobility. This poses a direct challenge to the maintenance of an adequate health workforce because of the real potential to deprive some regions and countries of key staff that can be attracted elsewhere by better paid jobs and enhanced working conditions (Rechel B. et al, 2006).

2.2   The Central Role of Health Workforce Planning

Given the aforementioned challenges, human resource planning in the health sector emerges as a key tool. However, health workforce planners have to overcome a number of fundamental obstacles, in order to introduce effective planning.

A set of strategic issues need to be tackled to ensure that optimal use is made of the information available to health workforce planners. These include for instance:

- Availability of the required capacity and skills within institutions or departments in charge of workforce planning;

- An institutional set-up that is conducive to joined-up and sustainable planning across government departments;

- Exchange with other countries that are facing similar challenges or addressing cross-border workforce issues (e.g. mobility).

These strategic issues might be exacerbated by recent governments' spending cuts. **In addition, at the most basic level, methodological challenges** include (Sermeus, W and Bruyneel, L., 2010):

- Lack of sound and up-to-date and accessible data;

- Uncertainty surrounding definitions of health professions;

- Uncertainty surrounding health labour market indicators terminology; and

- Lack of comprehensive integrated approaches towards health workforce planning.

The figure below provides an overview of how some of these challenges affect workforce planning at different levels.

Figure 3 – The Role of Workforce Planning
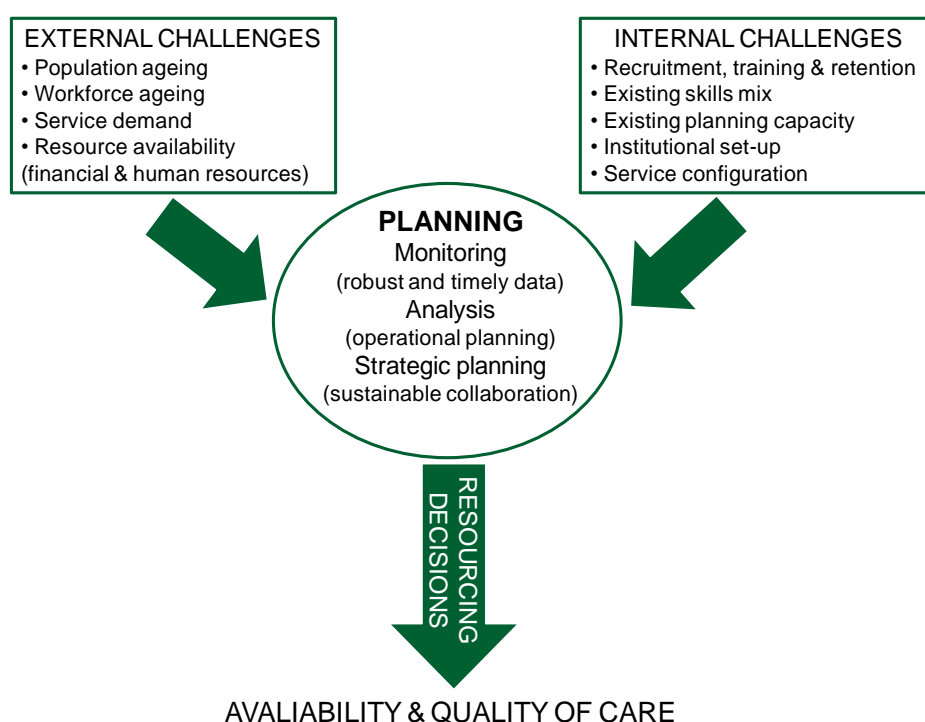
2.3   Existing Initiatives at the European and International Level

In response to these concerns the European Commission and other international institutions, including primarily the OECD and WHO, have launched various initiatives and activities. These initiatives target one or more of the key dimensions of workforce planning (i.e. monitoring, analysis and strategic planning) and can represent the joint effort of many international organisations (e.g. Joint Questionnaire). The figure below provides an overview of the key initiatives in the field of health workforce planning introduced at the European and international level.

Figure 4 – Existing European and International Activities
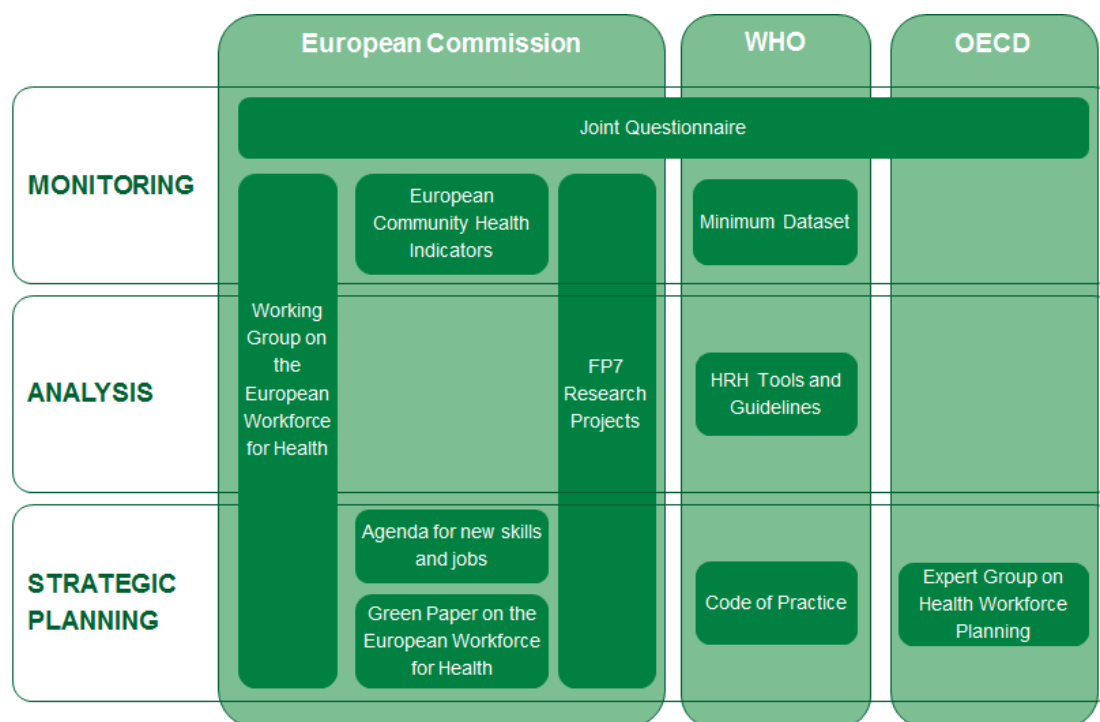
The next sections describe the EU and the international policy context. Specific European and international initiatives are then described in the respective sections.

2.3.1   EU Policy Context

In December 2008, the European Commission published the "**Green Paper on the European Workforce for Health**" in order to increase the visibility of common challenges surrounding the European health workforce (European Commission, 2008). The Green Paper identified demographic changes (including the ageing of the health workforce) as key challenges to the management of human resources for health across Europe.

To meet these and other challenges, the focus areas in the Green Paper included:

- coordination of training and education;

- improvement of workforce data collection;

- facilitation of health worker mobility within the EU, and;

- extra community recruitment, which prevents "brain drain", by instead promoting circular migration[5].

In 2009 a consultation round was initiated to gather views from stakeholders on the issues raised in the Green Paper. The 197 respondents included patients and consumers, trade unions and employers, national competent authorities, health professionals and healthcare managers. A strong majority of stakeholders recognised that **the health workforce 'crisis'**

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[5] The IOM World Migration Report (2008:302) defines circular migration as "the fluid movement of people between countries, including temporary or long-term movement which may be beneficial to all involved, if occurring voluntarily and linked to the labour needs of countries of origin and destination"

has a European dimension. Most also agreed that EU action would add value to the work being done by Member States.

Moreover, the results of the consultation reflected a recognition that **action needs to be cross-cutting**, **taking into account the development of human resources, education and training strategies, EU employment, social affairs, the internal market and cohesion policies**. Policy initiatives should be aligned at the European and the national level (e.g. Social Agenda, Qualifications Directive, Working Time Directive, Roadmap for equality between women and men).[6]

In November 2010, the European Commission communication on '*An Agenda for new skills and jobs: A European contribution towards full employment'*[7] announced the intent to develop, in cooperation with Member States, an **action plan** to address the gap in the supply of health workers. It also suggested that the action plan should be accompanied by a **Joint Action** under the Health Programme[8] on forecasting health workforce needs and workforce planning.

On 7 December 2010, the Council issued a statement inviting the European Commission to include an EU Joint Action in the 2011 work plan of its Second Programme of Community Action in the Field of Health 2008-2013[9]. This EU Joint Action would provide "a platform for cooperation between Member States on forecasting health workforce needs and health workforce planning in close cooperation with Eurostat, OECD and WHO"[10]. More details on the EU Joint Action on Health Workforce Planning and Forecasting (EU Joint Action), which this feasibility study aims to support, are provided in Section 1.2.

2.3.2   International Policy Context

In line with discussion and initiatives at the European level, on 21 May 2010, the 63rd World Health Assembly adopted the **WHO Global Code of Practice on the International Recruitment of Health Personnel**[11]. The objective of the WHO Global Code of Practice is to address the challenge of increasing health worker migration. In this sense, the WHO Global Code of Practice:

- establishes principles and represents a point of reference for a legal framework for the **ethical international recruitment** of health personnel;

- provides guidance on **bilateral and international legal instruments**; and

- promotes international discussion and cooperation regarding ethical international recruitment with a focus on **strengthening health systems in developing countries** against the threat of a 'brain drain' from those countries.

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[6] For instance, the ongoing revision and modernisation of the EU Working Time Directive (2003/88/EC) and the Directive on the recognition of professional qualifications (2005/35/EC) concern important components in the facilitation of intra-community mobility of health worker. The Migration Package adopted 24 May 2011 is also related as it responds to the issue of inward migration raised in the 2008 Green Paper.
[7] COM (2010), 0682 final of 23 November 2010, available at: http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2010:0682:FIN:EN:PDF
[8] OJ L301/3, Decision 1350/2007/EC of 23 October 2007 establishing a second programme of Community action in the field of health
[9] Decision 1350/2007/EC Establishing a second programme of Community action in the field of health (2008-13)
[10] Council of the European Union (2010), Conclusions on investing in Europe's health workforce of tomorrow: Scope for innovation and collaboration, 7 December 2010, available at
http://www.consilium.europa.eu/uedocs/cms_Data/docs/pressdata/en/lsa/118280.pdf
[11] WHO (2010) WHO Global Code of Practice on the International Recruitment of Health Personnel

In order to achieve this, the Code recognises the importance of effective gathering of national and international data and of health workforce policies and planning. For purposes of international communication, each Member State should, as appropriate, designate a national authority responsible for the exchange of information regarding health personnel migration and the implementation of the Code. This national authority should be responsible for the drafting of a data report, which provides updates on data collection every three years.

In addition, it recommends international organizations and other relevant institutions to provide technical and financial support to strengthen health systems in developing countries and to make international health migration sustainable.[12] Bilateral agreements across countries could be conducive to the provision of this type of support.

On a regional scale, the **South-eastern Europe Health Network** could also be involved in collaboration on health workforce planning, especially considering significant migratory flows from non-EU countries.[13] The Network, which was setup by WHO, involves both EU and non-EU countries in the South-eastern Europe region[14]. It currently carries out projects via health development centres in each country. One of its objectives is to empower health professionals to ensure a sustainable long-term improvement in public health and to strengthen regional collaboration on planning for emerging priorities.[15]

2.3.3   Bilateral Agreements

Some Member States already cooperate on a bilateral or regional level to ensure the sustainability of migration and to support circular migration. There are many cross-border frameworks for steering and managing health workforce mobility but uptake varies widely within and between countries. In this sense, it is possible to identify four broad types of bilateral agreements (Prometheus, 2011: 58):

a) **Agreements that aim to limit or exclude recruitment from countries with workforce shortages.** For instance, in 2001, the United Kingdom introduced a code of conduct for international recruitment, aiming to prevent recruitment from countries with workforce shortages.

b) **Agreements that aim to facilitate health professional mobility by establishing systems for mutual recognition of diplomas.** For instance, France signed with a group of African countries (Morocco, Tunisia, Central African Republic, Chad, the Congo, Gabon, Mali and Togo) an agreement under which medical doctors from those countries are allowed to practice in France if they have certain medical degrees (Prometheus, 2011: 58).

c) **Agreements that aim to foster international recruitment.** For instance, Germany has signed bilateral agreements with Eastern European countries to organise the recruitment of foreign nursing aids.

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[12] WHO (2010) WHO Global Code of Practice on the International Recruitment of Health Personnel
[13] Interview with stakeholders in Romania
[14] Albania, Bosnia and Herzegovina, Bulgaria, Croatia, Montenegro, the Republic of Moldova, Romania, Serbia and the former Yugoslav Republic of Macedonia
[15] http://www.euro.who.int/__data/assets/pdf_file/0005/108662/SEE_present_COE-WHO.pdf

d) **Informal bilateral agreements between professional bodies**, like the ones signed by associations in Tyrol in Austria and South Tyrol in Italy and those signed by associations in Finland and Estonia.

The table below presents more information on some of the bilateral agreement among European countries or between European countries and third countries.

Table 2 – Examples of Bilateral Agreements Across a Sample of Countries

Countries Involved	Details
Bulgaria, Hungary and Romania	Hospitals that are located near borders communicate their needs and stocks of workforce to neighbouring institutions so that they can be taken into consideration when addressing shortages or excess supply of human resources for health. Many Bulgarian doctors (for example anaesthetists) commute to Romania (which is facing local shortages in workforce) for 24-hour shifts.[16] The cooperation between Romania and Hungary is more extensive, as not only doctors and nurses work on both sides of the border, but also patients can be moved from one country to the other. This cooperation is part of the EU-funded Cooperation Programme Hungary-Romania 2007-2013.[17]
France and African countries	France has a number of bilateral agreements with African countries, including Morocco, Tunisia, Central African Republic, Chad, the Congo, Gabon, Mali and Togo. Under these agreements, medical doctors from the countries listed can practice in France if they have a French medical degree or one title mentioned in Article L431-1 of the Code de la santé publique.
France, Switzerland and Monaco	A convention médicale transfrontalière enables medical doctors who work next to the French border to practise on the other side of the border under specific conditions included in the contract. Two agreements have been signed – with Monaco and Switzerland (Prometheus, 2011: 200)
UK – China	Only UK employers and recruiting agencies who have signed the agreement can recruit through the Chinese recruitment agencies listed by the Chinese Ministry of Commerce. Hence, the bilateral agreement allows recruitment from China only if it takes place under these circumstances. It also forbids the recruitment of health workers from rural areas. The agreement was launched in March 2006.
UK – India	Only individual nurses that are not from the Indian states of Andhra Pradesh, Madhya Pradesh, Orissa and West Bengal are allowed to work in England.
Spain – Philippines	Signed in June 2006, it allows entry of up to 100,000 Filipino health workers into Spain where they are afforded the same

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[16] A report on the cooperation between Romania and Bulgaria will be published soon by the EU Observatory on Health Systems and Policies.
[17] Teleradiologia transfrontalieră în judeţele Csongrád-Arad HURO/0802/013. Project implemented under Cooperation Programme Hungary-Romania 2007-2013.
http://scjarad.ro/index.php?option=com_content&task=blogcategory&id=18&Itemid=139

Countries Involved	Details
	protections as Spanish workers.
Denmark – India	Facilitates labour movement of highly skilled workers and ensures their social protection and welfare. Specifically calls for cooperation between training facilities in both countries for mutual benefit.
Germany and Eastern European countries	In 2005, Germany has signed bilateral agreements with Croatia, Ukraine, Poland, Slovenia, Czech Republic, Slovakia, Bulgaria and Romania to organise the recruitment of foreign nursing aids.

Source: Dhillon *et al* (2010: 19)

Stakeholders nevertheless recognise that more can be done to expand such agreements and ensure the sustainability of health workforce migration. For instance, stakeholders in Romania argue in favour of a bilateral agreement to regulate the migration of Romanian physicians to France and to ensure their return on a rotation basis. Similarly, stakeholders in Finland have suggested that an agreement between Finland and Estonia should be reached in order to at least exchange data on health workers migrating between the two countries.

2.4   EU Financed Projects and Their Preliminary Results

Various research and innovation projects exploring trends in demand and supply of health workforce and proposing new forecasting models have been financed through Framework Research Programmes by the European Commission (FP7). The outcomes of these projects, launched in the period 2008 – 2009 and now coming to a conclusion, should support the work of the EU Joint Action. Below we describe three main FP7 projects and their preliminary results.

2.4.1   Nurse Forecasting in Europe (RN4Cast)

Nurse forecasting in Europe (RN4Cast) is a three year project (2009 – 2011) with the main aim of expanding and refining typical forecasting models with factors that take into account how features of work environments and qualifications of the nurse workforce impact on nurse retention, burnout among nurses and patient outcomes. The objective of the RN4CAST project is to identify innovative forecasting methods, which address not only volumes, but quality of nursing staff as well as quality of patient care.

The main rationale for the study is the worldwide numeric, skill and geographic imbalances in healthcare and nursing workforce. This workforce crisis is likely to increasingly affect quality and safety of healthcare and health system performance. The project focused specifically on nursing workforce planning and forecasting efforts, which proved to have a poor record of accurately predicting future nursing workforce needs and of informing policy interventions that avoid cyclical shortages. In addition, current forecasting models do not take into account the dynamics between nurse-to-patient ratios, skill mix, nurse education level, and nursing work environment on one hand and nurse wellbeing and patient outcomes on the other hand.

The RN4Cast-study is one of the largest workforce studies ever conducted in Europe and is expected to make a significant scientific contribution by shifting the main focus of nursing workforce

planning from simple analysis of labour demand and supply to impact on patient safety and quality (Sermeus, 2011).

Its multi-country, multi-level, cross-sector design is aimed at obtaining important unmeasured factors in forecasting models, collected at the hospital, nursing unit, and individual nurse and patient level. This is supported by surveys involving nurses, patients and hospitals and analysing data on hospital's discharge. The sample of the study included 12 countries in Europe[18], 9 sites in China[19], 6 provinces in South Africa[20] and 4 states in the USA[21], for a total of 1,344 hospitals and 75,841 nurses involved.

Through this design, the project team was able to collect and analyse:

- reliable data on patient-to-nurses ratios;

- key statistics on nurses education and skills; and

- key information on perceived hospitals working environments and quality of care.

Relationships and correlations between these different statistics suggest that:

a) Hospital safety grade is higher in hospitals with better work environments;

b) Hospital nurse burnout is lower in hospitals with better work environments;

c) Nurses and patients agree on hospitals quality of care;

d) Nurses burnout bear effects on patients' outcomes and hospital mortality.

These key findings aim to represent the necessary scientific basis to underpin informed policy decisions on health systems and more effective and efficient strategies of nursing workforce planning (Sermeus, 2011). The coordination of the RN4Cast project will submit a final report to the Commission before spring 2012. The final report will aim in particular to highlight that health workforce planning should focus more extensively on forecasting future health needs and it should factor in an analysis of the work environment and its impact on the retention of personnel.[22]

The work environment is in fact a crucial factor that influences the supply of human resources for health, their mobility, their performance and, ultimately, health outputs. For instance, according to the RB4Cast research, poor working conditions and poor work environment might push personnel to migrate. Hence, migration might be a symptom of poor work environment; thus, improving the work environment might help controlling migration flows.[23]

2.4.2   Mobility of Health Professional (MoHProf)

Launched in 2008, the general objective of the project **Mobility of Health Professionals (MoHProf)** is to research current trends in the mobility of health professionals to, from and within the EU. The objectives of the MoHProf study were three-fold:

- Analyse current trends of mobility of health professionals to, from and within the EU, including return and circular migration;

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[18] Belgium, Finland, Germany, Greece, Ireland, Netherlands, Poland, Sweden, Norway, Spain, Switzerland, UK
[19] 6 provinces, 2 municipalities, 1 autonomous region
[20] Gauteng, North-West, Free State, KwaZulu-Natal, Eastern Cape, Western Cape
[21] Pennsylvania, California, New Jersey, Florida
[22] Information collected through interviews with RN4Cast coordinator
[23] Information collected through interviews with RN4Cast coordinator

- Evaluate existing policies to address health workforce migration; and

- Develop recommendations on human resource policies in EU and third countries.

The study has analysed the current situation of and trends and developments in international migration of health workers in 25 countries around the world, with a focus on migration within, to and from the EU. The project looks at migration flows as well as 'push and pull' factors, to determine the scope, mechanisms, impact and interactions of different types of migration on national health systems, the global situation and the individual migrants.

The involvement of key stakeholders representing relevant organisations and sectors in national health systems has enabled the collection of data and statistics and also the generation of new, qualitative data. Consultation with policy makers has also represented a key component of the project.[24]

The outputs of the MoHProf study include:

- 25 national research reports including qualitative and quantitative findings;

- 25 national profiles on migration of health professionals;

- A book summarising key outcomes, national profiles and research findings, conclusions and recommendations at national and EU/international level; and

- Draft conclusions and recommendations at 3 levels, country, EU and global.

T**he conclusions and recommendations of MoHProf are particularly relevant for the EU Joint Action and any future EU level cooperation scenario.** Key recommendations for EU level action are currently undergoing a round of discussion and feedbacks, thus they are still preliminary. The following draft recommendations (MoHProf, 2011) have been taken into consideration when identifying possible scenarios for collaboration as part of this feasibility study.

   a) **Monitoring:** in order to respond to the urgent need to improve the monitoring of stock and flows of human resources for health, a permanent 'umbrella' for data sharing should be developed under EU leadership. This 'umbrella' should rely on links to national contact points with clear terms of reference and responsibilities regarding data collection and information sharing. EU-wide information and data collection mechanisms should focus on:

- Developing **common key indicators and comparable definitions**;

- Collecting, analysing and reporting clear **data on stock, flows, internal flows and different types of mobility**;

- Collecting, analysing and reporting information on **education and training capacity**;

- Facilitating **data and information exchanges** with countries outside the EU;

- Publishing and disseminating **good practices on health workforce planning methodologies**; and

- Analysing the **effectiveness of specific workforce management strategies.**

   b) **Strategic Planning:**

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[24] See http://www.mohprof.eu/LIVE/about.html

- Member States as well as third countries should be encouraged to **articulate policy targets for the self-sufficiency of their health workforce.** In this sense, countries that still rely on foreign trained health workers should strictly implement principles of ethical recruitment identified in the WHO Global Code of Practice. They should also apply appropriate strategies to integrate foreign trained health workers; such strategies could include the development of an EU-wide portal, fed by national data collection institutions, for comparing non-EU qualifications and for enabling registrar to verify foreign qualifications.

- Member States should be encouraged to **adjust education and training to the current and forthcoming healthcare labour market needs.** For this reason, a strategic rethinking of the health systems and of education and training for human resources for health might be needed.

2.4.3 Health Prometheus

The **Health Professional Mobility in the European Union** Study, led by the European Health Management Association (EHMA) and the European Observatory on Health Systems and Policies, aims at understanding health professional mobility in terms of its scale, relevance and directions, the reasons behind it, its possible implications, and the tools most adequate to respond to it.[25] The expected results of Prometheus are the promotion of networks of researchers, the proliferation of excellence through the exchange of good practices, as well as the support of stronger policy making and policy responses to professional mobility.[26]

The study, launched in 2009 for a 3 year period, covers all Member States as well as selected neighbourhood countries and will use scientific evidence to support policy-relevant recommendations. The study design involves:

- Gathering data on the scale of mobility and mapping gaps through an extensive network of country informants (32 countries in the wider European region, plus selected OECD countries);

- Carrying out 17 country case studies to provide a more detailed picture of the impact of mobility on health systems; and

- Understanding individuals' motivation for mobility through focus groups and individual interviews across 3 countries, involving more than 150 individuals.

The first volume of HEALTH Prometheus entitled "Health professional mobility and health systems – Evidence from 17 European countries" was published at the end of 2011. This book provides a comprehensive analysis of mobility patterns, the impacts of migration on health systems and its relevance for policy-making and policy responses across Europe. Future work within the project will build on the milestones achieved so far and will include a focus on effective policy responses at international, national and managerial level. **Actionable recommendations and future scenarios for collaboration will be presented in a second volume, due to be published before summer 2012.**

Some of the conclusions reached by Prometheus and presented in the first volume are summarised below (Prometheus, 2011).

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[25] See http://www.euro.who.int/en/home/projects/observatory/activities/research-studies-and-projects/Prometheus
[26] See http://www.ehma.org/index.php?q=node/46

- The **magnitude of mobility** is significant but diverse;

- The effects of **EU enlargement** on health workforce mobility are less than expected;

- Mobility flows outline clear **East-West asymmetries** that have been worsening in the recent past;

- **Income** is the most cited factor in deciding whether or not to migrate and it influences leavers, returnees and those who remain.

- Mobility contributes to **shortages** concerning the size, skill-mix and geographical distribution of the health workforce in source countries. Thus, it has a subtle but significant impact on the performance of the health system;

- **Data on mobility are still limited** and decision-makers do not know exactly who enters and leaves their system; therefore, it is difficult to assess the implications of mobility on health workforce and on the health system performance more in general.

On this basis, policy implications and recommendations are presented in the first volume of Health Prometheus (Prometheus, 2011). When it comes to data, intelligence and evidence on health workforce mobility, three main policy implications should be looked at:

a) There is a clear need for better **data to improve the measurement of mobility**; in this sense, four possible options should be looked at:

  - Conducting specific surveys;

  - Collecting personalised data on mobile health professionals;

  - Tracing health professionals in destination country registries; or

  - Collaborating between registries across Europe, formulating joint mechanisms to relay relevant data to sending countries.

b) Information on mobility needs to be contextualised with **data on the general workforce stock**. Joint measures and collaboration between the European Commission and Member States should support the sharing of intelligence on workforce policies and the training pipelines.

c) There is a need for investment in **research to evaluate workforce strategies and measure their effectiveness**. Evaluation studies can help to identify which workforce measures or bundle of measures are most appropriate.

The study has also identified policy implications in terms of strategic planning and health workforce strategies. In particular:

a) There is a need to **improve health workforce planning** in many countries. In this sense, international collaboration should focus on:

  - Improving the understanding of health workforce needs and identifying relevant models for workforce needs assessment;

  - Ensuring that mobility data are considered in the forecasting of health workforce needs and health workforce trends; and

  - Considering the development of a common European workforce planning framework to facilitate the exchange of data sources and forecasting methodologies, reduce

uncertainties and provide transparency supply and skill mix of the European health workforce.

b) There is a need to **improve national workforce strategies** in order to strengthen retention, raise domestic supply of health workers and optimise skills and their use.

3.0 Mapping Existing Data Collection Methodologies (Deliverable 1)

This section provides an overview of health workforce data collection methodologies, relevant for Deliverable 1 of the project. In terms of the different joint action work packages and in terms of the different levels at which the joint action can take place, this part of the baseline refers primarily to the collection and provision of information, helping to answer the first set of research questions:

- What data do we have about the current and future health workforce?

- What data do we need about the current and future health workforce?

After providing a brief conceptual overview of which data support effective workforce planning, we explore the framework for data collection activities at the international and national level. We then outline some of the data gaps, both at the international and national level, and the obstacles to effective data collection. Finally, we explore some of the strategies in place to address these obstacles and other opportunities for collaboration.

3.1 Conceptual Overview

Health workforce planning is concerned with ensuring that the right number and type of health human resources are available to deliver the right services to the right people at the right time (Birch et al, 2009). In order to be able to deliver against this purpose, one of the key requirements for human resource planning in the health sector are accurate and comprehensive information systems on the actual number of health care workers and their distribution in the health system (Rechel B. et al, 2006). The European Commission (2008) has stressed that Europe-wide data and information is important for provision and planning of healthcare services across Europe, especially considering the potential impact the shortages in one part of Europe might have elsewhere (European Commission, 2008).

Numerous countries have raised concerns regarding data availability on human resources for health and have argued that the lack of data represents one of the main obstacles to effective health workforce planning. While data availability can clearly be considered an issue, it is also important to stress that it might reflect the limited allocation of financial and technical resources to health workforce planning. Data availability will continue to be scarce unless governments recognise this and allocate resources to health workforce planning. Hence, there should be a **sense of purpose on the basis of which national government recognise the importance of health workforce planning to ensure the affordability and sustainability of their health systems**.

Limited investments also explain the absence of an **agreement at the international level on minimum data requirements for health workforce planning.** The key dimensions of data collection methodologies that need to be considered in such a minimum dataset are:

- The type of data that should be collected;

- The level of granularity of data collection[27]; and

- The availability of information, gaps and resource requirements to fill these gaps.

Data Type

As a first set of principles, data collection and analysis processes need to focus on **a limited and essential number of indicators that are comparable and measurable regularly using standard data sources** (Rigoli et at, 2009). The indicators retained should be characterized by "SMART" properties: specific (measures exactly the result); measurable (so that the result can be tracked); attainable (so that the result can be compared against a realistic target); relevant (to the intended result); and time bound (indicates a specific time period).

At the most basic level, there is a need to collect information and data on both stock and flow of human resources for health. Thus, local, regional and national authorities should collect, analyse and report data on:

a. **Human Resources Stock:** the number and characteristics of people employed in the health sector;

b. **Human Resources Flow:** the movements inside and outside the health workforce and across countries.

The table below reports some of the indicators that should be explored as part of health workforce data collection.

Table 3 – Stock and Flow Data

Human Resources Stock	Human Resources Flow
Density (Number of professionals per population) Headcount Age profile Gender Geographic distribution Distribution across sectors (public/private) Distribution across sectors (healthcare/social care)	**Workforce Flow** • Entering the workforce (from education and training, other countries, other sectors etc) • Leaving the workforce (retirement or other reasons) **Geographical Flow** • Within countries (across regions; urban/rural areas) • Across European countries • From and to non-European countries

Data Scope

Data to support health workforce planning can be collected, reported and analysed at the local, regional, national and international level. The level of detail and granularity of the data varies at different levels. Data collection at the local level might be able to capture specific characteristics of individual professionals. As data are aggregate at the regional,

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[27] In this context, granularity refers to the extent to which data are broken down into small and more specific observations. For instance, data can be broken down into national, regional or local level. The more detail the data, the higher the degree of granularity.

national and international level, some level of specificity might be lost. This is particularly the case at the international level, where different categories of data, collected through different sources, might have to be aggregated in order to facilitate comparison. Specificity loss might lead to data inaccuracy and incompleteness.[28] Only the introduction of a harmonised minimum data set could prevent the loss of accuracy, as the same data would be collected at different levels across countries.

There is no standard practice at the national or international level on which professions are included in the data collection exercise. Countries tailor the scope of workforce planning, and consequently of data collection methodologies, to their specific needs and approaches. Various permutations and combinations of what constitutes the health workforce potentially exist, depending on a given country's situation and means of monitoring (Rigoli et al, 2009). Therefore, some professions might be excluded while others are included. This is also influenced by differences in health professional qualifications and definitions across the world.

International institutions such as the WHO, ILO, OECD and Eurostat have worked together to develop definitions for different professions in the health sector. These definitions try to be sufficiently precise in order to allow data comparison across countries, while at the same time capturing differences across systems. Following these definitions, a few broad categories that are generally covered in the data collection across countries, including:

- Physicians
- Nurses
- Midwives
- Caring Personnel
- Dentists
- Pharmacists
- Physiotherapists
- Graduates (in the health professions)

Within these broad categories, health professionals are grouped according to their status. The joint data collection exercise carried out by Eurostat, OECD and WHO is structured around three groups, which are not mutually exclusive:

1. **Practicing Professionals**, which usually includes all practicing professionals that provide a service directly to the public;

2. **Professionally Active**, which includes practicing professionals and professionals for whom their education is a prerequisite for the execution of the job (e.g. physicians working in administration or management positions, requiring a medical education);

3. **Licensed to Practice**, which includes practicing and other (non-practicing) professionals who are registered and entitled to practice as health care professionals.

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[28] However, it is also important to bear in mind that the purpose of data collection differs across levels, ultimately leading to different focuses and different levels of details. At the local, regional and national level, data collection is generally instrumental to health human resource monitoring and planning; at the international level data is generally used for benchmarking and planning.

As mentioned previously, the level of detail and the granularity of the data collection tend to be higher at the local, regional and national level, compared to the data collected, analysed and reported by international institutions. Therefore, data collected at the national, regional or local level might distinguish more specific categories within each profession. For instance, in the case of physicians, it would be possible to distinguish between general practice, general paediatrics, obstetrics and gynaecology, psychiatry, etc. The number of categories for which data are collected can vary substantially across countries.

In addition, the definitions and the grouping criteria according to which professionals are allocated in the professional categories and sub-categories might differ across countries. In other words, the criteria according to which professionals are included or excluded from one category or role for data collection purposes might differ. For this reason, ultimately, the comparability of different data collection methodology can be limited.

Data Sources
Despite a prevailing view that statistics on the health workforce are scarce, a wide variety of sources that can potentially produce relevant information do exist (Rigoli et al, 2009). Each of these sources has strengths and limitations to be taken into account. However, effective and careful combination of different tools and sources can result in useful and rich information for the monitoring and planning of the health workforce.

Table 4 – Overview of Potential Data Sources for Monitoring Health Workforce

Source	Strengths	Limitations
Population Census	- Provides nationally representative data on stock of HRH: headcount of all occupations (including private sector, management and support staff, health occupations in non-health sectors) - Data can be disaggregated for specific subgroups (e.g. by age, sex) and at lowest geographical level - Rigorous collection and processing procedures help ensure data quality	- Periodicity: usually only once every 10 years - Database management can be computationally cumbersome - Dissemination of findings often insufficiently precise for HRH analysis, but microdata that would allow for in-depth analysis often not - Released - Cross-sectional: does not allow tracking of workforce entry and exit - Usually no information on labour productivity or earnings
Labour Force Survey	- Provides nationally representative data on all occupations - Provides detailed information on labour force activity (including place of work, unemployment and - underemployment, earnings) - Rigorous collection and processing procedures help ensure data quality - Requires fewer resources than census	- Variable periodicity across countries: from monthly to once every 5 years or more - Dissemination of findings often insufficiently precise for HRH analysis - Sample size usually too small to permit disaggregation - Cross-sectional: does not allow tracking of workforce entry and exit
Health Facility Assessment	- Provides information on health facility staff, including management	- Usually conducted infrequently and ad hoc

Source	Strengths	Limitations
	and support staff (headcounts and fulltime equivalents) - Data can be disaggregated by type of facility, staff demographics (age, sex) and geographical area - Can be used to track wages and compensation, in-service training, provider productivity, absenteeism, - supervision, available skills for specific interventions - Usually requires fewer resources than household-based assessments - Can be complemented with routine reporting (e.g. monthly) of staff returns from each facility (such - statistics are frequently cited in official publications)	- Private facilities and practices often omitted from sampling - Community-based workers may be omitted - May double-count staff working at more than one facility - Cross-sectional: does not allow tracking of workforce entry and exit - No information on unemployment or health occupations in non-health services sector (e.g. teaching, research) - Variable quality of data across countries and over time
Civil Service Payroll Registries	- Provides information on public sector employees (headcounts and full-time equivalents) - Data are usually accurately and routinely updated (given strong government financial incentive for quality information, which can also be validated through periodic personnel audits) - Data can sometimes be disaggregated by age, sex, place of work, job title and pay grade	- Excludes those who work exclusively in the private sector (unless they receive government compensation) Depending on the nature of the registry, may double-count staff with dual employment or - exclude locally hired staff not on the central payroll - Many countries have persistent problems eliminating ghost workers and payments to staff who are no longer active
Registries of Professional Regulatory Bodies	- Provides headcounts of all registered health professionals - Data are routinely updated for entries to the national health labour market - Data can typically be disaggregated by age, sex and sometimes place of work - Depending on the characteristics of the registry, it may be possible to track career progression and exit of - health workers	- Variable coverage and quality of data across countries and over time, depending on the characteristics and capacities of the regulatory authorities - Usually limited to highly skilled health professionals

SOURCE: Rigoli et al, 2009

3.2   Baseline Analysis

The remainder of this section provides an overview of current data collection methodologies across the 34 countries covered by the study. The analysis distinguishes between international and national data collection practices, with international approaches being presented first.

3.2.1   International Data Collection Collaboration and Initiatives

European countries and international institutions already invest resources in order to ensure the comparability of data across borders and in order to share data on human resources for health. This collaboration can either be proposed under bilateral or multilateral agreements or can be driven by international initiatives.

The Joint Questionnaire on Non-Monetary Health Statistics

Eurostat, OECD and WHO have built databases reporting cross-country information on human resources for health. The purpose of building these databases is generally to inform comparison; the extent to which these data are used to support health workforce planning at the national level appears to be limited. Measures should be taken in order to ensure that the data is fed back to and used by national authorities to benchmark their data collection methodologies or to inform health workforce planning.

The table below provides a brief overview of the main databases and the information they offer.

Table 5 – International Stock Databases

	OECD Health Data	WHO 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, % total civilian employment Practising health staff Professionally active health staff Health facilities (numbers, per million population)	Numbers, density (per 100,000 population), FTE[29], %, type (e.g. acute care, psychiatric, etc.) Activity data (hospital admissions, average length of stay Other demographic and epidemiological indicators	Numbers, density (per 100,000 population), %, by NUTS2 regions, by gender, by medical specialty Healthcare facilities (numbers, density per 100,000 population, by NUTS2 regions, by hospital ownership) Healthcare activities
Variables/Scope	Medical graduates Registered physicians Practising physicians: by sex, GP/specialist	Number of physicians, (PP[30]) Physicians, (FTE) density, GPs, medical	Health personnel, absolute numbers and density

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[29] Full-Time Equivalent
[30] Physical Persons

	OECD Health Data	WHO Health for All Database	Eurostat
	Foreign-trained physicians Nursing graduates Midwives Practising nurses Professional nurses Associate nurses Acute care nurses staff ratio Practising dentists Practising pharmacists Hospitals Hospital beds Medical technology	Surgical, obstetric & gynaecological, paediatric specialties: % of physicians working in hospitals Physicians, nurses, midwives, dentists, pharmacists graduated: PP and density per year Nurses: (PP and FTE) density % of nurses working in hospitals Midwives: (PP and FTE) density Dentists and pharmacists: (PP and FTE) density Hospital: per 100,000 population Hospital beds: per 100,000 population	Nursing and caring professionals, absolute numbers and density Health personnel by region, absolute numbers and density Physicians by specialty, absolute numbers and density Physicians by age and sex, absolute numbers Hospital beds Medical Technology Technical resources in hospital Hospital patients

Source: Information collected by Matrix during the research and Dussault et al (2012), Policy Summary 2, Assessing future health workforce needs

In order to obtain this information, international organisations rely extensively on the work done by national data collection authorities. Organisations like Eurostat, OECD and WHO organise annual ad hoc data collection exercises through which they request information from national authorities.[31] Since the scope and number of data collected by international organisation has grown in the past, concerns have been raised among national institutions about the burden of this data collection exercises. Users have also raised concerns about data inconsistencies across databases.

As part of international efforts to promote the effective gathering of national and international data on health workforce stocks, **Eurostat, OECD and WHO (Europe) have agreed, in 2007, to develop a new joint data collection exercise.** This relies on the drafting and distribution of a 'joint questionnaire' on health workforce statistics, which was launched for the first time in 2009. The joint questionnaire focuses exclusively on the collection of data on the stocks of health workforce. Its aim is threefold:

1. Reduce data collection burden on national authorities;
2. Promote consistent use of international standards classifications and definitions (International Standard Classification of Occupations/ISCO, International Classification of Health Accounts/ICHA, etc.);
3. Improve the consistency of data reported by international institutions.

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[31] International institutions also rely on regular requests of updates of core data sets

The joint questionnaire on non-monetary health care statistics includes two types of modules (see Appendix 3.0 for additional information):

1. **Common Modules**, which cover:

   a. time series related to **health employment** and which include:

      - key occupational categories (physicians, midwives, nurses, caring personnel, dentists, pharmacists, physiotherapists, hospital employment);

      - a clear distinction between practicing, professionally active and licensed to practice health workers; and

      - new graduates (in the different occupational categories);

   b. time series related to **physical and technical resources**, including hospitals, hospital beds, bed in nursing care facilities and medical technology.

2. **Additional Module** on both health employment and physical and technical resources at subnational or regional level, on the basis of the NUTS2 list of regions. This information is requested only by Eurostat.

Stakeholders in the Member States have argued that the 'joint questionnaire' constitutes **an important step forward for the collection of comprehensive and complete data on human resources for health across Europe.** The work carried out by WHO, OECD and Eurostat as part of the development of the questionnaire has also led to the identification of key definitions (of health professions) and of key indicators. These have been effectively used for benchmarking at the national level and have, in certain cases, influenced national data collection methodologies.[32] However, it still seems that data collected through the 'joint questionnaire' are not used at the national level to inform health workforce planning and are still not sufficiently accessible.

The European Community Health Indicators (ECHI)

Eurostat data have also provided the basis for **European Community Health Indicators (ECHI)**, which have been developed through the ECHI project. The project was carried out and financed under the Health Monitoring Programme and the Community Public Health Programme 2003-2008. The purpose of the project was to identify a list of minimum indicators, to ensure data comparability across Europe. The result is a list of 88 'indicators' for the public health field arranged according to health and health determinants. Building on that list, the project was continued by **European Community Health Indicators Monitoring** (ECHIM)[33].

Funded by the second Health programme (2008 – 2013), ECHIM aimed to consolidate and expand the ECHI system towards a sustainable health monitoring system in Europe. The purpose of the ECHIM project was to extend the list of indicators taking into consideration all data available across European countries. The indicators developed by ECHIM include the numbers of physicians and nurses employed in Member States and an indicator on the mobility of professionals is under development.[34]

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[32] For instance, data collected in Italy by the Statistical Office (ISTAT) are based on indicators and definitions defined in the joint questionnaire

[33] On-going until end of June 2012

[34] http://ec.europa.eu/health/indicators/echi/list/index_en.htm

In order to ensure the sustainability of the project, ECHIM has been supported by a **Joint Action for ECHIM**, which aims to support the implementation of the indicators in the Member States. ECHIM maintains a network of national health indicator experts for data collection, monitored the data flow between Member States and tried to implement the ECHI indicators in the Member States. The Joint Action involved primarily health statistics institutions at the national level. As part of this Joint Action, all participating European countries have agreed on a short-list of common key indicators, while a smaller number of countries have agreed on a longer list of indicators. The short and long list have been reported initially on a separate websites[35] and then moved on the DG SANCO website.

Multilateral Agreements

In addition to international institutions efforts to improve data collection, groups of countries are already sharing information among them, in order to build comprehensive databases. **A multilateral agreement, for instance, has been drawn between Nordic countries** (Denmark, Sweden, Norway), where medical associations share data on present and future supply and demand of health workforce. A report is drafted on the basis of this information sharing exercise. The report aims to provide cross-country estimates on the evolution of supply and demand of human resources for health. These forecasts help Nordic countries plan their health workforce not only according to their own training capabilities and health needs, but also according to those of neighbouring countries. Ultimately, this allows them to overcome some of the challenges related to intense health workforce migration in the region. Unfortunately, the information sharing takes place only every two years, raising doubts regarding the reliability of the data.

Despite bilateral and international efforts to improve datasets, ensure consistency across them and reduce the burden on national authorities, **there still seem to be gaps in the information available.** In particular, data presented by international organisations are often not updated (probably because ad hoc data collection requires time and relies on national inputs) and they lack granularity.

The Minimum Data Set (MDS) on International Flows

International organisation and experts in the field recognise that data on the migration of health workforce are missing or inaccurate (Prometheus, 2011 and Buchan and Perfilieva, 2006: 5). Data on flows are generally not collected at the national level and thus cannot be reported or analysed at the international level. International organisations have recognised this deficiency and have been trying to address it.

Improving the availability and international comparability of migration data and statistics for health personnel is crucial to help countries to develop more evidence-based policies. Central to this is the compilation of a minimum data set (MDS) to effectively monitor international health workforce migration. While the MDS has not been created and its adoption is voluntary, its aim is to induce national authorities to collect and exchange relevant data on health personnel migration (Prometheus, 2011). While national data collection authorities are ultimately responsible to develop their own MDS, the WHO has developed, in collaboration with the OECD, draft guiding principles for the monitoring of the health workforce migration and the development of an MDS.

The purpose of the guiding principle set down by WHO and OECD is to provide guidance and recommendations for data collection and to describe the possible nature and scope of

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[35] www.healthindicators.eu

data to be collected in the context of the MDS, Basic principles for the MDS data collection include:

- **Coverage of all health professions:** data collection and monitoring should include all categories of health personnel, including medical laboratory technologists, health management and support workers, etc.;

- **Focus on foreign trained professionals**: the main priority of mobility data collection methodologies should be to collect data on international health worker migrants according to the country where first education/training qualification leading to a health profession was completed/obtained;

- **Monitoring both stocks and flows:** Collecting data on migrant health workers is of limited use if it is not complemented by other efforts to improve information on domestic health workers in origin countries. Data collection for the MDS should build on current data sets as much as possible;

- **Active and non-active distinction:** Distinguish immigrant health workers active in the health sector from those who are not.

Figure 5 presents the minimum data set to monitor international migration of health workers, based on the principles listed above. The first and most important level of priority for data to be collected is **level A** - monitoring the country of first qualification of migrant health personnel. However, such information would need, to the extent possible, to be cross tabulated with other variables from the second level (**level B**) to permit a more precise and comprehensive identification of different groups of migrant health workers as well as to better assess the potential impact of health workforce migration on origin countries. **Level C** is less essential, but would still be highly valuable to better monitor the characteristics, role and the status of migrant health workers in the labour market of destination countries.

Thus, countries should aim to collect data on Level C, in order to effectively monitor international flows of health workers. The MDS is however only a voluntary tool and countries have yet to report on progress with respect to the adoption of this tool. However, the principles for data collection presented in the guidelines for the implementation of the MDS can effectively be used to improve data collection on health workforce mobility at the national level.

Figure 5 – Minimum Dataset for International Flows
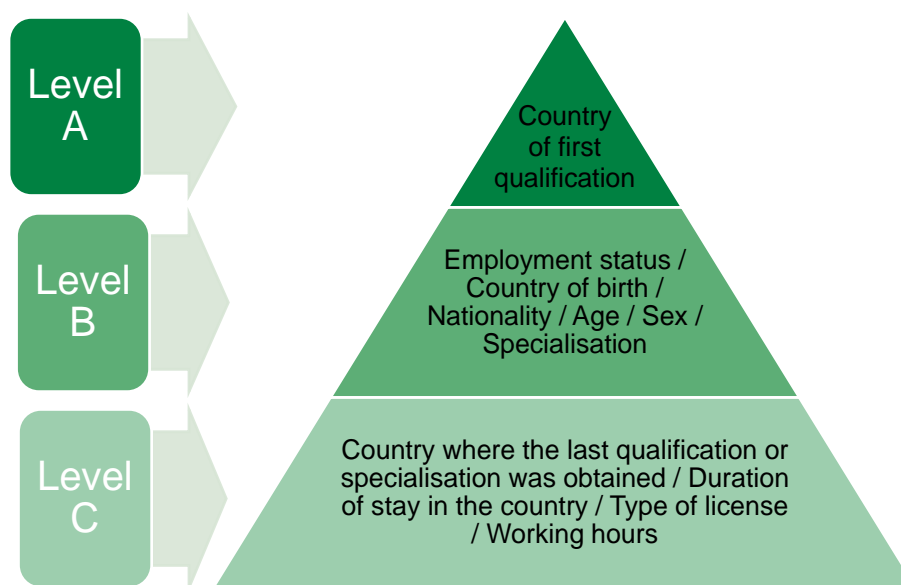
Other ad hoc data collection exercises

Other international initiatives to collect, report and share data on health workforce mobility include *ad hoc* multi-country studies with large scope. Researchers and international organisations have explored the nature and magnitude of international migration of health workforce. For instance, Buchan and Perfilieva (2006) provide an analytical overview and highlight the key findings of five country case studies on health worker migration in the European region (Estonia, Germany, Lithuania, Poland and the United Kingdom). Their study reports on the current level of reported staff shortages, assesses migratory flows of different categories of health workers and examines policies and policy responses. The report concluded that country governments should take action in order to ensure that they are able to make informed decisions about health workforce migration.

Similarly, the European Migration Network (EMN) (2006) has produced a report Managed Migration and the Labour Market – The Health Sector. The report summarises and compares findings from eleven European countries (Austria, Belgium, Estonia, Germany, Greece, Ireland, Italy, Latvia, Sweden, the Netherlands and the United Kingdom) on the current situation of and needs for migrant healthcare workers. The EMN report concluded that, given the anticipated increasing importance of the contribution of migrants to the healthcare sector across the EU, it would, therefore, seem appropriate that future data collection methods are improved, also to ensure comparability between Member States (EMN, 2006).

The European Union has also funded, under the Seventh Framework Programme (FP7), specific projects on international mobility in the health sector. MoHProf[36] and Prometheus[37] aim to collect, report, analyse and share international migration figures, which outline existing trends, identify relevant data gaps and stimulate international discussion. National and international stakeholders have praised these initiatives and their usefulness to take stock of existing data collection methodologies and data availability. However, in their

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[36] See Section 2.4.2
[37] See Section 2.4.3

preliminary conclusions, these projects have underlined how more needs to be done in order to improve health workforce monitoring and in order to support health workforce planning. This suggests that, despite multilateral agreements and international efforts to overcome existing challenges in the monitoring of health workforce flows, there is a need for stronger support and coordination at EU level (MoHProf, 2011). Some of the suggestions put forward as part of MoHProf and Prometheus have been presented in details in Section 2.4.2 and 2.4.3.

3.2.2   National Data Collection

In the next paragraphs we explore national data collection methodologies and data availability at the national level. In particular, the next sections will focus on:

a) National data collection institutions;

b) Data coverage, namely for which health professions are data available; and

c) Data type, distinguishing between data on the stocks and flows of human resources for health.

National data collection institutions

As the following table illustrates, three main data collection institutions can be identified in Europe:

- Regional and national statistics offices;
- Regional and national professional associations or chambers;
- Ministries of Health (or specific bodies therein).

The overwhelming majority of European countries rely on two or more data collection institutions for their health workforce planning; only three countries, namely Estonia, Luxembourg and the Republic of Ireland, have a single major data collection institution. The Ministry of Health may act as a primary data source (being responsible for registration and licensing for example), but may also pool data from various other primary data sources (including regional and national professional associations) as is the case, for example, in Germany and Spain. The involvement of professional associations – doctors associations most notably – can be explained in part by the fact that professional membership is obligatory in many countries and that such associations are often responsible for the registration/licensing process (as is the case, for example, in Germany, the Czech Republic, Belgium, Bulgaria and France). Some countries also have a dedicated health statistics office such as the National Centre for Health Informatics in Bulgaria and the Institute of Health Information and Statistics in the Czech Republic, which might collect or collate data from different sources.

Table 6 – Data Collection Institutions

Member State	Regional/National Statistics Office	Ministry of Health	Ministry of Education	Other Public Institutions***	Universities	Professional Associations	Health/Social Security Insurers	Service Providers
Austria	x			x		x		x*
Belgium		x		x		x	x	
Bulgaria	x	x	x				x	
Croatia	x	x		x		x	x	x*
Cyprus	x	x				x		
Czech Republic	x	x	x			x		x*
Denmark	x	x						
Estonia								x
Finland	X	x	x	x		x		
France		x	x	x				
Germany	X					x		
Greece								
Hungary	X	x			x			
Iceland	X	x				x	x	
Italy	x		x	x		x		
Latvia	X	x						
Liechtenstein	X					x		
Lithuania				x		x	x	
Luxembourg		x						
Malta		x		x				x*
Macedonia (FYROM)								
Montenegro								
Netherlands	X				x			
Norway	X		x	x				
Poland	X			x		x		
Portugal								
Republic of Ireland								x
Romania		x				x		
Slovakia		x	x			x		
Slovenia	x	x				x		
Spain	x					x		
Sweden	x	x						
Turkey								
United Kingdom	x	x	x			x		x

*Hospitals
*** Other public institutions involved include regional governments and accreditation bodies. See country profiles (Appendices to the report) for further information.

Data Coverage

The **scope** of the data collected in European countries by the aforementioned institutions is summarised in the table below.

In general terms, the scope of data collection across European countries can be described as wide, covering physicians, nurses, midwives, dentists, pharmacists and physiotherapists – six of the broad categories identified above. In only two countries, Slovenia and Cyprus, is there no data for nurses and midwives.

Many countries, including Finland, Germany, Iceland, Luxembourg and the UK also collect data on health care professionals falling outside of this categorisation, such as laboratory technicians and administrative staff. The level of granularity within these broad categories as well as the type of data collected (see Table 8) varies from country to country.

Table 7 – Data Coverage – Scope

	Physicians	Nurses	Midwives	Dentists	Pharmacists	Physiotherapists	Total Number of Licensed Professions
Austria	x	x	X	x	x	X	
Belgium	x	x	X	x		x	
Bulgaria	x	x	X	x			
Croatia	x	x	X	x	x	x	
Cyprus	x			x	x	x	
Czech Republic	x	x	X	x	x	x	
Denmark	x	x	X	x	x	x	
Estonia	x	x	x	x			
Finland	x	x	x	x	x	x	
France	x	x	x	x	x	x	
Germany	x	x	x	x	x	x	32
Greece*							
Hungary	x	x		x	x		
Iceland	x	x	x	x	x	x	32
Italy	x	x	x	x	x	x	
Latvia	x	x	x	x	x	x	21
Liechtenstein	x	x	x	x	x	x	
Lithuania	x	x	x	x	x	x	
Luxembourg	x	x	x	x	x	x	
Malta	x	x	x	x	x	x	23
Macedonia (FYROM)*							
Montenegro*							
Netherlands	x	x	x	x	x	x	
Norway	x	x	x	x	x	x	29
Poland	x	x	x	x	x		
Portugal*							
Republic of Ireland	x	x	x	x	x	x	
Romania	x	x		x	x		
Slovakia	x			x	x	x	
Slovenia	x	x	x	x	x	x	
Spain	x	x	x	x	x	x	
Sweden	x	x	x	x			
Turkey*							
United Kingdom	x	x	x	x	x	x	

Information not available

Within the broad categories presented in the table above, **there is substantial variation in the type of data collected.** It is, nevertheless, possible to draw some general observations about type of data collected. Table 8 and Table 12 below give a general overview of the type of data collected in European countries with regard to human resources stock and flow respectively.

Data on Stock of Human Resources for Health

For stock data, headcount data are recorded across Europe and data on age, gender as well as geographical distribution are collected in almost all European countries. The wide selection of data collected can be largely attributed to the obligatory registration/licensing of most healthcare professionals. Data on specialisation are captured by most countries and in Italy, for some professions, the additional element of skills mix is also recorded.

In other countries however, data on specialisation are not exhaustive and often only cover health professionals that receive specialist training in the country and not those that trained abroad. This is the case in Iceland, for instance, where almost 90 per cent of doctors obtain their specialist training abroad. Since there are no data on the size of the flow of Icelandic doctor to foreign schools, it is not possible to capture significant and representative information on doctors' specialisation in Iceland.

Stock data on the active workforce and on full-time/part-time employment are collected at the national level in under half of all European countries. Consequently, only a limited number of countries develop full time equivalents (FTE) or whole time equivalents (WTE), which would allow them to have a better understanding of working time. Hence, only a limited number of countries are able to estimate the impacts of the feminisation of the labour market or of the flexibility of the labour contracts on health care provision.

Finally, it is important to stress that in most countries stock data at the national level cover only the public sector, while it is difficult to obtain data on the number and characteristics of health workers employed in the private sector. This has been recognised as one of the main data gaps in most European countries and can significantly alter the picture in countries where a large share of the health care is provided by privately.

Table 8 – National Data Type: Human Resources Stock

	Headcount	Age profile	Gender	Geographical Distribution	Active Workforce	Employment type (FT/PT)	Education (Qualifications)	Specialisation
Austria	x	x	x	x			x	
Belgium	x			x			x	x
Bulgaria	x	X						x
Croatia	x			x		x		x
Cyprus	x	x		x				
Czech Republic	x		x	x				
Denmark	x	x		x	x			x
Estonia	x			x	x	x	x	x
Finland	x	x	x	x	x			x
France	x	x	x	x	x	x		
Germany	x	x	x			x		
Greece**								
Hungary	x	x	x	x	x	x	x	x
Iceland	x	x						x
Italy	x	x	x					
Latvia		x	x	x	x		x	x
Liechtenstein	x	x		x				x
Lithuania	x	x	x	x				x
Luxembourg	x	x	x	x				x
Malta	x	x	x					
Macedonia (FYROM) **								
Montenegro**								
Netherlands	x	x		x		x	x	x
Norway	x	x	x	x	x		x	x
Poland	x							
Portugal**								
Republic of Ireland		x	x			x		
Romania	x	x	x					x
Slovakia	x							
Slovenia	x	x	x	x	x		x	x
Spain	x	x	x		x		x	x
Sweden	x	x					x	
Turkey**								
United Kingdom	x	x	x			x	x	

* Hospital, doctor's surgery, nursing home etc. See country profiles for further information.
** Information not available

Data on Flows of Human Resources for Health

There is a general lack of accurate and comprehensive data that would allow the monitoring of health workforce migration. Multiple national and international sources collect data on health workforce migration, based on indicators such as stock of foreign health workers, entry data, licensing data or the intention to migrate. Stilwell et al. (2003) listed the potential data sources for health worker cross-border movements and stated that the data available tend to reflect the migration systems and policies of national governments, as there is little standardization of migration statistics. The main potential data sources should include:

- professional registers of national regulatory bodies or professional associations;

- administrative registers, such as population registers and foreign registers;

- work and residence permit data, visa data and border statistics;

- census data; and

- surveys.

The methods used to assess the magnitude of professional and geographic mobility tend to vary across countries. One way of measuring the inflow of health workers is looking at the number of graduates. However, the numbers of health workers entering the health professions each year is different from the number of those graduating in health specialties. Not all graduates in fact will automatically start working as health professionals and others might leave and enter the labour market in another country. Similarly, not all entrants will be new graduates: some may be immigrants moving from another country; others will be transferring from other professions; others may even be simply moving from one region to another and be regarded as a new entrant nonetheless.

Registration data are also often used to measure professional mobility of the health workforce. Changes in registration numbers might provide an estimate of the number of professionals entering the health workforce. Yet using such a measurement relies on the assumption that registration is compulsory to work in the health sector in all countries, and that registers are updated regularly. In practice, such conditions are not always met. For example, compulsory registration is applied in some but not all countries and professions. The table below summarises in which countries and across which profession registration is compulsory.

Table 9 – Overview of Registration Practice

Country	Compulsory registration yes/no
Austria	Only compulsory for some professions[38]
Belgium	Yes
Bulgaria	Yes
Croatia	Yes
Czech Republic	Yes
Denmark	Yes
Estonia	Yes

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[38] No registration for professional health and nursing care personnel, medical-technical professions, nursing assistants, paramedic assistants, paramedics, dental assistants

Country	Compulsory registration yes/no
Finland	Yes
France	Yes
Germany	Registered with respective professional chambers, not at national level but at regional level
Greece	Yes
Hungary	Yes
Iceland	Yes
Ireland	Yes
Italy	Compulsory for GPs, no information on other professions available
Latvia	Yes
Lithuania	Yes
Luxembourg	Yes
Macedonia	Yes
Malta	Yes
Netherlands	Yes
Norway	Yes
Poland	Yes
Romania	Yes
Slovakia	Yes
Slovenia	Yes
Spain	Yes
Sweden	Yes
United Kingdom	Yes

Source: Matrix country profiles

On this basis, the availability of data on inflows also tends to vary across professions. More data is available for doctors than for nurses and other health professionals, and with professions such as nursing and midwifery often paired together (as in Hungary and England).

In France, the United Kingdom and Poland, there are discrepancies in the data provided, depending on whether a health professional works in the public sector (where data is counted in official statistics) or the private sector (where data is often not counted). Elsewhere, there are differences in measurement, depending on whether one counts active professionals (as Austria does) or total professionals (as countries such as France, Belgium and the United Kingdom do) or both (as Germany does) (Prometheus, 2011: 36). Similarly, data is more likely to be available in Western Europe than in Eastern Europe (Prometheus, 2011: 36).

A good example of measurement difficulties incurred in assessing inflows is evident in statistics for the NHS in England, where between August 2010 and August 2011 73,790 (6.4% of the total workforce) professionals joined the NHS, compared to 96,718 (8.4%) leaving during the same time period.[39] Although seemingly convincing, the figures present several data limitations. For example, the data do not distinguish between those professionals entering from abroad, and those entering the professions from England. The figures fail to differentiate between those emigrating abroad, those retiring and those taking

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[39] NHS, 2011; http://www.ic.nhs.uk/pubs/provisionalmonthlyhchsworkforce

more temporary hiatuses. Moreover, the data counts all those leaving a strategic health authority, which, while accurate, fails to take into consideration those that transfer into other professions and those who choose to move to other regions.

Measuring the magnitude of outflows from the health workforce is also cumbersome. One way of measuring outflow is to look at license renewals or revalidation schemes. In some Member States, like Germany, physicians and other health professionals are required to renew their license regularly to keep their permission to practise. This information provides an indication of how many doctors stop practising and leave the health workforce.

However, data on license renewal are not available in every country, as not all countries require health professionals to renew their license on a regular basis (Prometheus, 2011: 34). In the UK, revalidation will be introduced in 2012 and over a five-year period, all British physicians are expected to be re-evaluated. Spain plans to introduce a voluntary re-licensing scheme in the near future and several other Member States are considering to introduce revalidation schemes or to make their current revalidation programmes compulsory. Revalidation schemes vary consistently across the EU.[40] The table below summarises revalidation schemes across the EU Member States where information is available.

Table 10 – Overview of License Renewal Arrangements in the EU[41]

Country	Time frame (years)	Compulsory/non-compulsory
Austria	3	Yes
Belgium	3	No
Bulgaria	3	No
Croatia	7	Yes
Cyprus	3	Yes
Czech Republic	3	Yes
Denmark	n/a	No
Estonia	n/a	n/a
Finland	n/a	No
France	5	Yes
Germany	5	Yes[42]
Greece	5	Yes[43]
Hungary	5	Yes
Ireland	5	Yes
Italy	3	Yes
Latvia	5	Yes
Lithuania	5	Yes
Luxembourg	n/a	No
Malta	n/a	n/a
Netherlands	5	Yes (specialists)
Poland	n/a	n/a

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[40] Villanueva, Tiago (2010) *Revalidation wave hits European doctors.* Canadian Medical Association Journal 182 (10): p. 463-464. http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2900364/

[41] Merkur, Sherry et al. (2008) *Policy Brief. DO lifelong learning and revalidation ensure that physicians are fit to practise?* WHO European Ministerial Conference on Health Systems. p. 6-11
http://www.euro.who.int/__data/assets/pdf_file/0005/75434/E93412.pdf

[42] General Practitioners and Specialists contracted by social health insurance funds

[43] for National Health Service doctors

Country	Time frame (years)	Compulsory/non-compulsory
Portugal	n/a	No
Romania	5	Yes
Slovakia[44]	55	Yes
Slovenia	7	Yes
Spain	n/a	No
Sweden	n/a	No
United Kingdom	5	To be introduced in 2012

'Intention-to-leave' and requests for verification certificates[45] are also often used as means of assessing geographical outflows, because they assess the numbers who are planning on leaving the country. Yet such measurements assume that all health professionals who 'intend to leave' actually do so, and that health professionals who request verification certificates are successful, apply only once and decide to move abroad (Prometheus, 2011). Moreover, not all countries request verification certificates, with the potential implication that outflows can be underestimated (as identified by several countries, including Belgium and Slovakia (Prometheus, 2011).

In order to collect information about geographical mobility in particular, these sources distinguish between (Prometheus, 2011):

- **Foreign-trained health workers** (i.e. any health worker who was trained in a country other than the one where he/she resides and practices)
- **Foreign-born health workers** (i.e. any health worker who was born in a country other than the one where he/she resides and practices)
- **Foreign-national health workers** (i.e. any health worker who is not a citizen or permanent resident of the country where he/she resides and practices)

The table below summarises the key sources of mobility data across countries and the respective primary type of mobility data available.

Table 11 – **Key Sources and Data Type per Country**

Country	Key sources of data	Principal types of mobility data available
Austria	Professional chambers; regional/national statistics office; hospitals; other public institutions	Date of initial registration; foreign registrations
Belgium	National health ministry; professional chambers; health/social security insurers; service providers	Date of initial registration; retirements; equivalent and good standing certificates
Bulgaria	National ministries (health/education); regional/national statistics office; health/social security insurers	Date of initial registration; good standing certificates
Croatia	National health ministry; regional/national statistics offices; professional chambers; health/social security insurers; hospitals; other public institutions	Date of initial registration; foreign registrations

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[44] During the interviews, stakeholders mentioned that licenses in Slovakia are issued permanently.
[45] Verification certificates confirm the validity of a health professional's qualifications, and allow the health professional to practice provided they fulfil the requirements of the destination country.

Country	Key sources of data	Principal types of mobility data available
Cyprus	National health ministry; regional/national statistics offices; professional chambers; other public institutions	Date of initial registration; foreign registrations
Czech Republic	National ministries (health/education); regional/national statistical offices; professional chambers; hospitals	Date of initial registration; good standing certificates
Denmark	National health ministry; regional/national statistics office	Date of initial registration; attrition rate; matching registration with social security details
Estonia	Service providers	Date of initial registration; good standing certificates
Finland	National health ministry; regional/national statistics office; professional chambers	Date of initial registration; attrition rate; matching registration with social security details
France	National ministries (health/education); other public institutions	Date of initial registration; foreign registrations
Germany	Regional/national statistics offices; professional chambers	Date of initial registration; social insurance contributions; professional chambers
Greece	Health/social security insurers	Equivalent certificates; social insurance contributions
Hungary	National health ministry; national/regional statistics offices; universities	Date of initial registration; equivalent and good standing certificates
Iceland	National health ministry; national/regional statistics offices; professional chambers; health/social security insurers	Date of initial registration; good standing certificates
Italy	Professional chambers; universities; other public institutions	Date of initial registration; retirements; foreign registrations; work permits
Latvia	National health ministry; national/regional statistics offices	Date of initial registration; emigration rates
Liechtenstein	Regional/national statistics offices; professional chambers	Date of initial registration
Lithuania	Professional chambers; health/social security insurers; other public institutions	Date of initial registration; retirements; work permits; equivalent and good standing certificates
Luxembourg	National health ministry; professional chambers	Date of initial registration; foreign registrations
Malta	National health ministry; hospitals; other public institutions	Date of initial registration; retirements; inflows and outflows from professional chambers
Netherlands	Regional/national statistics office; universities	Date of initial registration, equivalent certificates
Norway	National education ministry; regional/national statistics office; other public institutions	Date of initial registration; attrition rates, retirement rates; matching registration with social security details
Poland	Regional/national statistics office; professional chambers; other public institutions	Date of initial registration
Portugal	Professional chambers	Registrations
Republic of Ireland	Professional chambers/ Service providers	Date of initial registration; foreign registrations; certificates of good standing
Romania	National health ministry; professional chambers	Date of initial registration; equivalent and good standing certificates
Slovakia	National ministries (health and	Date of initial registration; emigration data

Country	Key sources of data	Principal types of mobility data available
	education); professional chambers	
Slovenia	National health ministry; regional/national statistical office; professional chambers	Date of initial registration; retirement rates; inflows and outflows
Spain	Regional/national statistical office; professional chambers	Date of initial registration; retirement rates
Sweden	National health ministry; regional/national statistical office	Date of initial registration; attrition rates; retirement rates; matching registration with social security details
Turkey	OECD	
United Kingdom	Regional/national statistical office; professional chambers; service providers	Date of initial registration; foreign registrations, work permits; certificates of good standing

In conclusion, there is a general lack of data on the flows of human resources for health in Europe. Table 12 provides a summary of the professional and geographical flow data collected in European countries. With regards to professional flow, registration serves as the main data source, providing information on both entry to (date of registration) and exit from (retirement/death) the healthcare profession. As registration is a practice in place in most European countries, it potentially constitutes a valuable data source for information on health workforce flows if registers are periodically (annually) updated and contain information on registrants' work and work location.

There are no data available for Cyprus, Liechtenstein and Montenegro. In some cases, the data were not specific on numbers of people leaving and moving profession and this had to be 'assumed' or interpreted from the data available. For example, in Estonia, the numbers of people leaving are extrapolated from the number of mutual recognition diploma certificates issued by the Health Care Board; Italy draws its numbers from the number of work permits granted. Some country data for the health workforce does not always include all categories. In Romania for example there is limited information on the number of nurses.

With the exception of the Nordic countries (excluding Iceland), there is no systematic collection of geographical flow data in European countries. A 2006 report produced for the WHO (Buchan and Perfilieva, 2006), comprising 5 country case studies – Estonia, Germany, Lithuania, Poland and the United Kingdom – found that none of them could provide accurate and complete information on international flows of health professionals. The most common measure of flow is from certificates issued by competent authorities ("verifications"). This gives an overall annual measure of the number of professionals, who consider moving to another country, but not all of them actually move and others may apply more than once. For example, the Estonian country report notes that only 182 doctors actually emigrated out of the 344 who took out certificates. Another limitation of available information is that it is virtually impossible to track out-flow when the professional does not take up a similar position in the destination country. For example, a Polish nurse who takes up a post as a care assistant in the UK will not be recorded in professional registration data (Buchan, 2005).

Table 12 – National Data Type: Human Resource Flow

	Professional flow			Geographical flow		
	Inflow	Outflow		Inflow	Outflow	
	Date of Registration	Attrition	Retirement	Inflow	Outflow	Measure of Flow
Austria	x			x		Registration
Belgium	x		X	x	x	Equivalent and good standing certificates
Bulgaria	x				x	Good standing certificates
Croatia	x			x		Registration
Cyprus	x			x		Registration
Czech Republic	x				x	Good standing certificates
Denmark	x	x		x	x	Matching registration with social security details
Estonia	x			x	x	Registration, good standing certificates
Finland	x	x	x	x	x	Matching registration with social security details
France	x			x		Registration
Germany	x				x	Outflow data from the professional associations
Greece*						
Hungary	x			x	x	Equivalent and good standing certificates
Iceland	x				x	Good standing certificates
Italy	x		x	x		Registration and work permits
Latvia	x				x	Emigration statistics from statistics bureau
Liechtenstein	x					
Lithuania	x		x	x	x	Work permits, equivalent and good standing certificates
Luxembourg				x		Registration
Malta	x		x	x	x	
Macedonia (FYROM)*						
Montenegro*						
Netherlands	x			x		Equivalent certificates
Norway	x	x	x	x	x	Matching registration with social security details
Poland	x					Not available
Portugal*						
Republic of Ireland	x			x	x	Registration and good standing certificates
Romania	x			x	x	Equivalent and good standing certificates
Slovakia	x					No available
Slovenia	x		x	x	x	
Spain	x		x			
Sweden	x	x	x	x	x	Matching registration with social security details
Turkey*						
United Kingdom	x			x		Work permits, registration, good standing certificates

* Information not available

Good practices

Despite the aforementioned stock and flow data gaps, two examples of good practice can be identified in terms of data collection, namely **Finland** and the **United Kingdom**.

- The Social Security number in **Finland**[46] enables the national statistics office to match data provided by the web of registers. This data can then be extracted on demand by the country's workforce planning unit. The data collected is **comprehensive in scope and type** covering place of residence and work, retirement, age, gender, graduates as well as detailed data on specialisation made available by the Finish medical association.

- The Electronic Staff Record (ESR) in the **United Kingdom** serves as a principal resource for NHS staff in England and Wales. Key data is extracted into a separate database (Data Warehouse) which covers the whole NHS in England and Wales at national, regional and organisational level. The Data Warehouse has **improved accuracy, timeliness and consistency of data** and access is open to a wide range of organisations including the NHS Information Centre for health and social care, NHS employers, strategic health authorities and the Department for Health.[47]

It is important to emphasise that whilst these data collection practices have been identified as good, they are not best practices given the considerable variation in the size of the budget allocated to data collection activities across European countries. The cost-effectiveness of data collection practices should be evaluated, in order to identify best practice examples. However, due to the limited information on the share of health expenditures allocated to workforce planning and workforce data collection in particular, it is difficult to draw conclusions on the cost effectiveness of data collection practices.

In addition to national data collection efforts, international organisations have frequently stressed the importance of information systems for health workforce planning and they have invested resources in the collection, analysis and reporting of information on the stocks of human resources for health. Substantial data gaps still exist in the availability of data on migration of health workforce.

3.3   Common Key Issues

This section summarises some of the common key issues related to data collection methodologies in the different European countries, explored in the previous paragraphs.

Several European countries still lack information systems to provide comprehensive and accurate data on the number of health care workers and their distribution in the health system (Rechel, B. et al, 2006). Consequently, the picture of the healthcare workforce remains incomplete and inaccurate. In particular, information in many European countries on numbers of health workers and trainees, their specialisation, their geographical spread, age, gender and country of provenance are not available, difficult to gather or not reported.

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[46] See country profile. The matching of social security numbers also takes place in Denmark, Norway and Sweden.
[47] See country profile and http://www.electronicstaffrecord.nhs.uk/esr-benefits/data-warehouse/

Limited human, technical and financial resources contribute to the current poor status of information and evidence on the health workforce situation. Dedicated health information staff at the national, regional and local level is needed for data collection and processing. In some cases, health information staff and infrastructures are limited; in others, resources allocated to them are insufficient.

Common key issues can be identified in the different phases of data collection, analysis and use and are presented below.

- **Definitions of professions and roles included or excluded from the different professional categories are often not clearly established**. Comprehensive data on the private sector are not systematically collected and electronic systems for registration and data collection need to be further developed in some countries (e.g. Latvia, Austria). Italy, Ireland, Croatia, Slovakia and the UK do not collect data from the private sector, therefore, data and information collected from different institutions and sources might provide different pictures of the stock and flow of the health workforce. This problem is exacerbated when comparing data and information across different countries.

- **There are generally multiple sources providing information on the health workforce** (e.g. professional registries, payroll registries, labour force surveys, etc.). In countries where multiple institutions collect data, it is necessary to ensure that data are comparable. Cyprus, Hungary, Slovenia and Lithuania all cited the comparability of data as a major challenge. In order to develop a comprehensive view of human resources for health, data collected through these different sources might have to be compared and aggregated.

- **Most importantly perhaps, there seems to be no sense of purpose behind collection of data on human resources for health.** Data collection is in most cases not targeted at workforce planning and workforce planning institutions have to rely on multiple sources in order to develop a dataset which is instrumental to planning and forecasting. Consequently, many indicators which would be useful for planning purposes are not covered in the data collection. Moreover, in addition to issues around public dissemination, strict data protection laws and budgetary constraints present further challenges for data collection.

More specifically, in terms of workforce mobility, accurate and complete data on the migration of human resources for health are not available in most countries. There seem to be a few possible causes for this:

- **Sources for migration data are limited if existent at all.** Most common measures of flow are general migration data, work permits, immigration data and, in particular, certificates issued to competent authorities[48] ("verifications"). This gives an overall annual measure of the number of professionals, who consider moving to another country, but not an accurate picture of how many actually move. Data sources are also not able to capture certain types of mobility that may be on the rise in the EU such as returning migrants, short-term mobility, weekend work and dual practice, commuting and training periods abroad. Moreover, most countries find it very difficult

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[48] This is however only a measure of migration outflows, not inflows.

to provide time-series data, thereby hampering the ability to understand mobility trends and monitor fluctuations (Buchan and Perfilieva, 2006).

- **The absence of a single definition of health professional mobility is one of the factors leading to the existence of three different types of indicators (foreign trained, foreign born and foreign national[49]) to measure mobility.** Limitations in the validity of each measure and their unsystematic use across Europe make it difficult to assess the scale and character of mobility. It is difficult to effectively compare data across countries and, consequently, to assess the validity of mobility estimates. Moreover, the inaccuracy of general stock indicators makes it difficult to assess how mobility contributes to the health workforce (Prometheus, 2011).

- **No country appears to have accurate outflow data, while the majority of countries[50] manage to develop estimates of inflows of health workforce**. Intention-to-leave data are used to gauge emigration but, although an important signal, their validity is disputed. Health professionals may choose to leave without conformity certificates as they are not required by all employers; they may apply for certification retrospectively; or may apply but never leave (Prometheus, 2011).

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[49] Health workers who are not citizens or permanent residents of the country in which they are registered
[50] AT, BE, HR, CY, DK, EE, FI, FR, HU, IT, LT, LU, MT, NL, NO, IE, RO, SI, SE, UK

4.0   Snapshot of Workforce Composition (Deliverable 3)

This section sets the context in terms of the existing composition of the health workforce across each of the 34 countries that are covered by the study.[51] It is based on information collected through our country profiles, compiled through desk based research, interviews with stakeholders as well as comparative international sources. Health staff for all 34 countries were categorised into different professional categories and physicians, midwives, doctors and general practitioners. Data for the nursing and midwifery professions were collected across 31 out of the 34 countries, with the exception of Luxembourg, Greece and Liechtenstein (where only midwifery data were available).

Before describing in detail the composition of the health workforce across the 34 countries, it is important to provide an overview of the resources allocated to the health care sector and of the total size of the health workforce. At the end of this chapter, drawing on the information collected through our country profiles and through the review of the literature, we present an overview of possible shortages of health workforce across Europe.

4.1   Health Care Expenditure

The level of health expenditure varies between 5 per cent of GDP in Turkey and almost 12 per cent of GDP in France, across European countries, according to Eurostat and WHO data (see Figure 4). On the whole, it appears that northern and central European countries, like France, Germany, Belgium, Denmark allocate a larger percentage of their GDP to health expenditures than southern and eastern European countries, like Turkey, Romania, Cyprus. However, there are also notable exceptions, like Luxembourg, where health expenditure appears to be lower than the European average and Greece and Portugal where health expenditure is above average.

There have been significant changes in the level of health expenditures in each country in the past few years, with most countries experiencing rising expenditure as a share of GDP, as ageing population and other socio-demographic trends put pressure on health systems. Despite the lack of up to date information[52], it is possible to infer that a number of countries saw an increase in their health expenditure between 2007 and 2009. The share of GDP allocated to health care in the Netherlands, for instance, increased from 8.9 per cent in 2007 to 11.1 per cent in 2009.

An important aspect to be taken into consideration when discussing the link between human resources for health and health expenditures is **supplier-induced demand.** In healthcare, supplier-induced demand refers to the theory that a large supply of healthcare professionals (e.g. physicians) provides incentives for competing professionals to 'induce' a larger-than-optimal demand for medical services and products. This is due to the informational asymmetries between patients and physicians, i.e. patients know less about healthcare so trust physicians' judgment (Wennberg et al 1982). Supplier-induced demand is a particular problem in retrospective reimbursement systems, where physicians obtain reimbursement for conducted services (as opposed to prospective reimbursement systems, where physicians have an allocated budget or fixed salary). As discussed in Section 6.2.2,

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[51] Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Italy, Latvia, Lichtenstein, Lithuania, Luxembourg, FYROM, Malta, Montenegro, Netherlands, Norway, Poland, Portugal, Ireland, Romania, Slovakia, Slovenia, Spain, Sweden, Turkey, United Kingdom
[52] Comparable data are only available up to 2009.

in some contexts, reducing supplier-induced demand is one of the purposes of health workforce planning.

Figure 6 Health Expenditure as Percentage of GDP across European Countries

SOURCE: Eurostat (Health Database) and WHO (Health for All Database), No data for Liechtenstein

4.2   Overall healthcare sector workforce

The total number of professionals working across the health and social care sectors was obtained for 30 out of the 34 countries[53]. These 30 countries, however do not report their data in a similar way and comparability has been an issue in analysing overall trends and assumptions. The data are shown in a variety of formats which include:

- Health and social care employees per 1000 population ratio
- Total working in hospitals
- Total working in hospitals and general practitioners
- Employees in public administration, education and health
- Employees in health services and social work
- Employees in health and social care as main occupation
- Employees in health and social care

Southern and eastern European countries such as Turkey, Greece, Poland and Hungary have a smaller proportion of health and social care professionals compared with their total population. By contrast, northern and western European countries such as the Scandinavian countries and the Netherlands employ a higher proportion of staff in relation to their population.

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[53] By contrast, the OECD's database provides data on health and social care employees as a proportion of the population for 22 countries (OECD Health Statistics Database at http://stats.oecd.org/Index.aspx?DataSetCode=HEALTH_STAT . Found under Health— Health Care Resources—Total Health and Social Care Employment).

Figure 7 – Number of Health and Social Care Professionals per 1,000 population (2009)
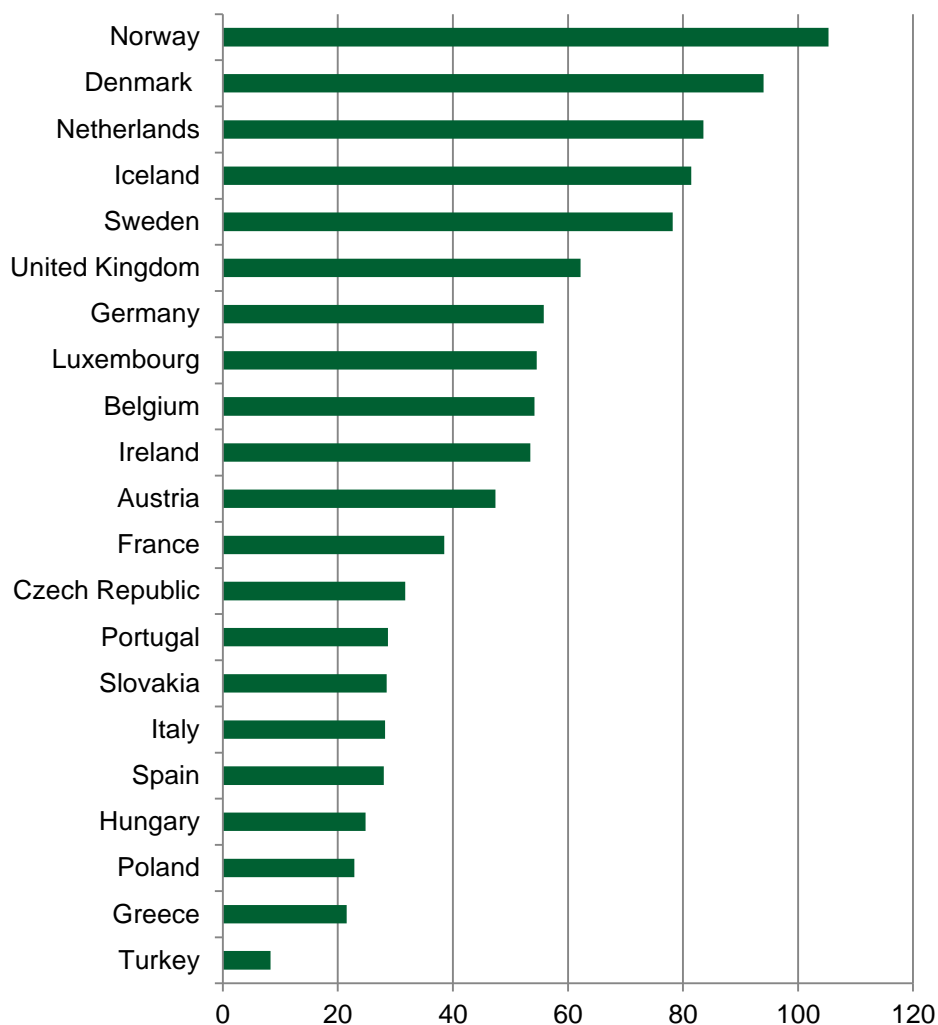
SOURCE: OECD StatExtracts database, "Health—Health Care Resources—Total Health and Social Employment", Found at http://stats.oecd.org/Index.aspx

Comparing expenditure and workforce data shows that countries such as Turkey, Poland and Hungary allocate fewer resources to health, while Scandinavian countries allocate more, which could indicate a correlation between expenditure and staffing ratios. However, one cannot assert that lower spending on health results in fewer staff as a proportion of the population: Greece and Italy both allocate a higher than average proportion of GDP to health, yet employ fewer staff members as a proportion of their population. In contrast, Luxembourg spends below average (6.2% of GDP) yet employs a high number of health and social care professionals in relation to its population. In analysing the data, we can infer that differing levels of staffing reflect national politics as well as available financial resources.

4.3   Physicians

In 2009, there were just over 330 physicians per 100,000 population across EU countries on average.[54] There is some difference between EU-15 members (346.33) and EU-12 countries (271.56), indicating a notable difference between Eastern European and Western European countries. Greece had by far the highest number of physicians per capita (612 per 100,000 population), followed by Austria (467 per 100,000 population). Turkey, Montenegro and Poland had the lowest number of physicians per capita (between 160 and 220 per 100,000 population approximately).

According to the OECD (forthcoming), **between 2000 and 2009, the ratio of physicians per capita has grown in most European countries at a rate of 1.7% per year on average**. The growth rate was particularly rapid in countries which started with lower levels in 2000 (e.g. Turkey) as well as in the United Kingdom and Greece. On the other hand there was no growth in the number of physicians per capita in Estonia, France and Poland and there was a marked decline in Slovakia. The reasons for this decline differ across countries; however in the countries where there has been minimal growth or decline this has often been due to the numbers of medical graduates being insufficient to replace doctors who leave the profession (often through declining numbers of graduates or, where there is a numerus clausus to limit entry as in France, due to the numerus clausus being set too low over a period of time).

The age composition of the physician workforce shows that in 2009 on average across all OECD countries, about 30% of all doctors were over 55 years of age (OECD, 2011c). More than 35% of doctors in Italy, France, Germany and Hungary are over 55. This outlines the fact that the European health workforce is ageing fast, thus raising challenges related to the sustainability of the system.

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[54] Due to the limited amount of data that it was possible to collect across countries (using national level sources) and in order to ensure the comparability of the information, we here report data obtained from the WHO Health for All Database. A similar figure of just over 329 physicians per 100,000 is reported across the whole WHO European region (which includes all EEA countries, candidate countries to the EU such as Turkey, Croatia and Montenegro and other countries such as the former Soviet republics).

Figure 8 – Physicians per 100,000 Population across European Countries, 2009 (unless stated)
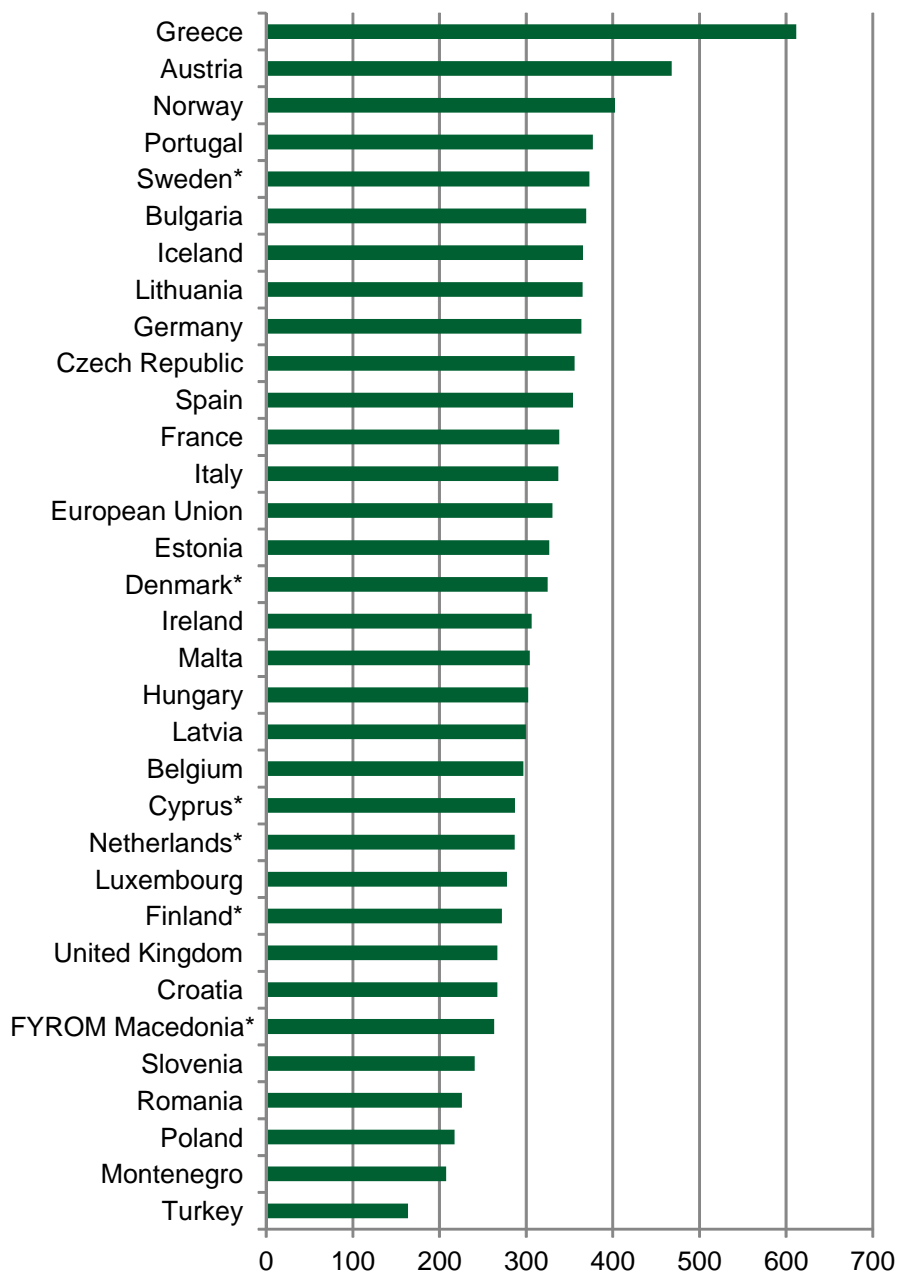
data from 2008, SOURCE: WHO Health for all database

4.4   General Practitioners by Headcount

Data was collated from the WHO Health Database with the latest data on General Practitioners[55] for 2008 and 2009 for 31 countries, with the exception of Cyprus[56], Liechtenstein[57], FYROM[58] and Slovakia[59]. In the period 2008/2009, there were on average 7.58 GPs per 10,000 population across these countries.

As anticipated, the data illustrate that countries with larger populations (including France, Germany and United Kingdom) have a greater number of GPs while countries with smaller populations such as Montenegro, Malta and Luxembourg have a lower number of GPs.

The balance in the physician workforce between general practitioners and specialists has changed over the past few decades, with the number of specialists increasing much more rapidly (OECD, forthcoming). Specialists greatly outnumber generalists in central and eastern European countries and in Greece; other countries instead have a more equal balance between specialists and generalists (e.g. France, Portugal).

Table 13 – Number of General Practitioner, 2009

Country	Number of General Practitioners
France	103,349
Germany	53,549
United Kingdom	49,184
Italy	46,051
Turkey	37,980
Spain	33,958
Portugal	20,221
Romania	17,830
Austria	12,979
Belgium	12,286
Netherlands (2008)	11,741
Poland	7,838
Czech Republic	7,366
Sweden (2008)	5,734
Finland	5,453
Bulgaria	4,949
Norway	3,909

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[55] The definition of General Practitioner is provided by the OECD, WHO and Eurostat. Data includes district medical doctors/therapists; family medical practitioners; primary health care physicians; medical doctors and officers (general) and resident medical officers and interns specialising in general practice; data excludes paediatricians, obstetricians; specialist physicians; psychiatrists; clinical officers and feldschers.
[56] No WHO data
[57] Not a member of WHO
[58] No WHO data
[59] Most recent data was from 2007

Country	Number of General Practitioners
Denmark (2008)	3,685
Hungary	3,543
Greece	3,124
Ireland	2,449
Croatia	2,437
Lithuania	2,299
Latvia	1,315
Estonia	1,101
Slovenia	1,017
Luxembourg	395
Malta	286
Montenegro	247

SOURCE: WHO Health database

More importantly, however, there is some noticeable geographic variance in terms of the density of GPs across countries. For instance, countries in eastern and southern Europe have fewer GPs in relation to their population. The five countries with the fewest GPs per 10,000 inhabitants were Poland, Greece, Hungary, Montenegro and Slovenia. However, Estonia (8.22 GPs per 10000) and Romania (8.3 per 10000) have above average GP staffing levels, despite both being in Eastern Europe and comparatively low levels of investment in health (at 7% and 5.4% of GDP respectively, see section on health expenditure). Countries in western and northern Europe, by contrast, tend to have better GP staffing levels with regard to their population. The five countries that have a high GP to population ratio are Portugal, France, Austria, Belgium and Finland.

The implication is that there appears to be strong geographic variance, with western and northern European countries more likely to employ a higher number of GPs per 10,000 inhabitants.

Figure 9 – Number of GPs per 10,000 population, 2009
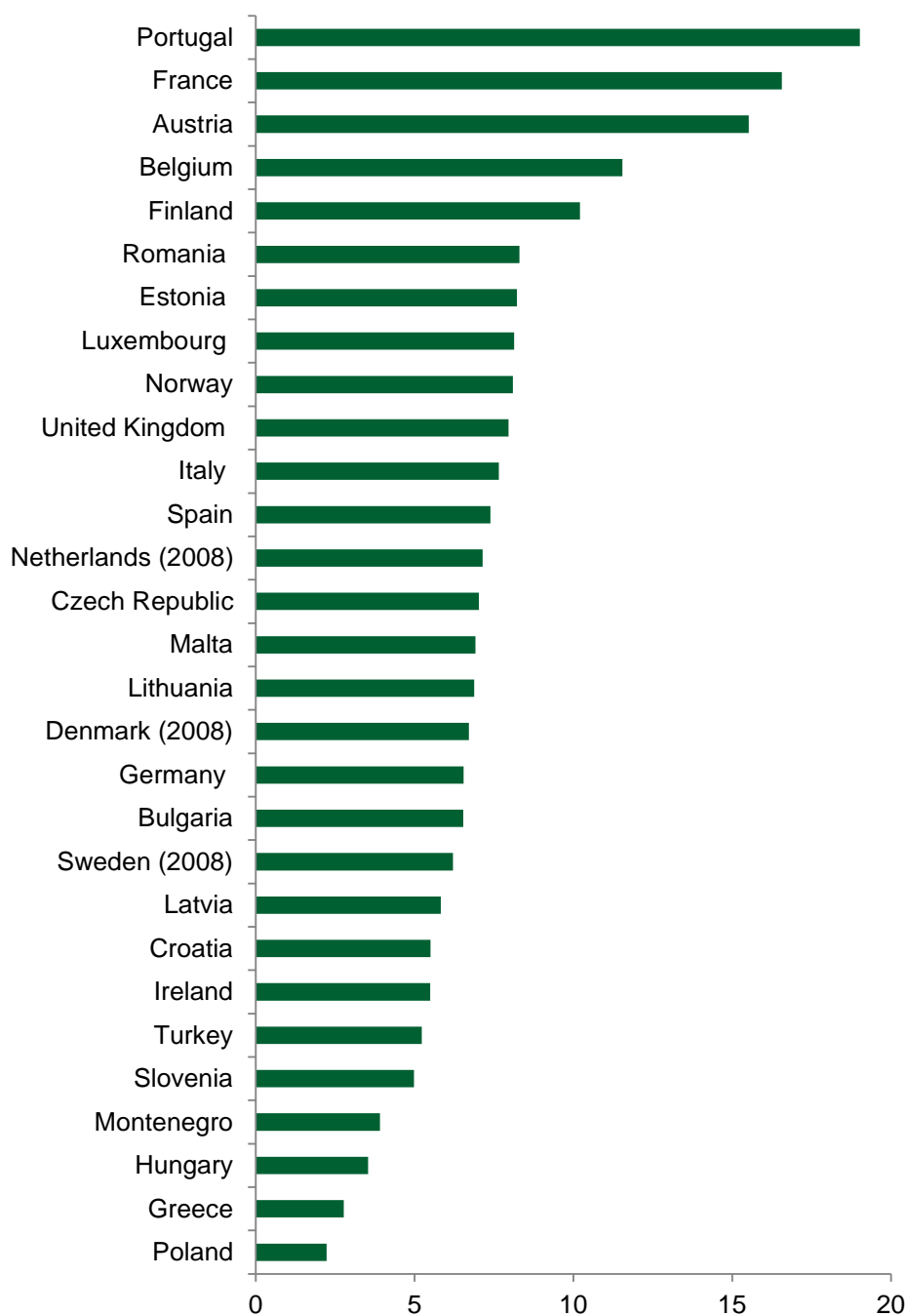
4.5   Medical Specialties by Headcount

Information on medical specialties (i.e. *specialised branches of medicine* in which physicians work) and headcounts for each specialty was obtained for all countries but FYROM (Macedonia). However, the variety, the quality and the sources of data varied between different countries. Where possible, national information was used; however, where such information was lacking, data from international databases such as the World Health Organisation's *Health for All database* were used to complement the findings.

There was notable variance in the number of specialties that were clearly identified within the data. For instance, data from the United Kingdom identified as many as 63 different medical specialties compared with 21 countries which had no disaggregation of their national data.

From the limited disaggregated data on medical specialties, two observations can be made:

1) The specialties identified by individual countries that attracted the most doctors were **anaesthetics, internal medicine and general medicine**. Although the sample of countries was limited to thirteen, thereby limiting the ability to comment on the wider medical workforce, it is evident that some branches of medicine are more prominent than others.

2) Even from the limited evidence available, **it is clear that countries differ in terms of what they include in their definition of the 'medical workforce'**. Several countries, for instance, count dentistry as a separate medical specialty while others count it as a distinct profession; Greece goes as far as pairing bacteriology and haematology together.

This finding demonstrates the difficulty of obtaining comparable national data on the number of professionals in some specialties such as anaesthetics and paediatrics, with many countries not disaggregating data into specialties and with definitions of specialities varying across countries. It is possible to compare the number of general practitioners and dentists using existing international databases. Moreover, it is possible in theory to compare, for example, the numbers of anaesthetists between countries provided there is both a clear definition of an anaesthetist's role and available data from a wider range of countries. However, it appears differences exist in how data are disaggregated which makes comparing specific occupations— such as paediatricians—more difficult than comparing the number of dentists or doctors.

Table 14 – Principal Medical Specialties within each Country

Country	Top three most common medical specialties for physicians, by headcount	Year of reference and statistical source
Austria	Internal Medicine; Anaesthetics; Obstetrics	2009, Jahrbuch der Gesundheitsstatistik, Statistiks Austria 2010
Belgium	Anaesthetics; Internal Medicine; Surgery	2009, Statistiques Annuelles des Professionnels des soins de sante en Belgique - Service public federal securité de la chaine alimentaire et environnement
Bulgaria	General Practice; Paediatrics; Internal Medicine	2010, National Statistics Institute; www.nsi.bg
Croatia	Dental practice; General Practice; Paediatrics	2009, Croatian Yearbook 2010
Czech Republic	Internal Medicine; General Medicine; Surgery	2009, Czech Statistical Office http://www.czso.cz/csu/2010edicniplan.nsf/engk apitola/0001-10--24
France	Anaesthetics; Radiology; Paediatrics	2011, Ministry of Work, Employment and Health; http://www.sante.gouv.fr/IMG/pdf/seriestat157-2.pdf (page 17)
Greece	Pathology; Bacteriology-	2006; Statistical Yearbook of Greece (2008),

Country	Top three most common medical specialties for physicians, by headcount	Year of reference and statistical source
	Haematology; Paediatrics	http://dlib.statistics.gr/Book/GRESYE_01_0002_00060.pdf (page 146/7)
Latvia	Dentistry; General Practice; Surgery	2009, Central Statistics Bureau of Latvia, http://data.csb.gov.lv/Dialog/SaveShow.asp
Liechtenstein	General medicine; Physiotherapy; Dentistry	2009, Liechtenstein Health Information, http://www.llv.li/amtsstellen/llv-ag-gesundheitsberufe.htm
Norway	General Practice; Internal Medicine; Psychiatry	2008,Norge Legeforening, http://legeforeningen.no/id/147205
Portugal	General Practice; Paediatrics; Obstetrics	2010; Institut Nacional de Estatistica, http://www.ine.pt
United Kingdom	Anaesthetics; Psychiatry; Radiology	2009, NHS IC Annual Census – England Scottish Workforce Information Standard System (SWISS), http://www.isdscotland.org/Health-Topics/Workforce/Publications/data-tables.asp?id=577#577;; Health Statistics & Analysis Unit, Welsh assembly Government Available at: http://www.statswales.wales.gov.uk/ReportFolders/reportFolders.aspx

4.6   Nurses

This section provides information on the number of nurses per 100,000 inhabitants. Due to the limited amount of data across countries (using national level sources) and in order to ensure the comparability of the information, the data refer to the WHO Health for All Database.

Nurses are usually the largest health profession outnumbering physicians in most countries. They play a critical role in providing healthcare in hospitals and long-term care institutions and increasingly also in primary care and in home care settings (OECD, forthcoming). Nonetheless, there are concerns about possible shortages of nurses, especially considering population ageing, which increases the demand for nurses.

On average, there are 823 nurses per 100,000 inhabitants cross EU countries. The number of nurses per capita is highest in Nordic countries (e.g. Iceland, Denmark, Norway), where there are more than 1,400 nurses per 100,000 inhabitants. In Eastern and Southern European countries (e.g. Bulgaria, Cyprus, Spain, Croatia), there are on average less than 500 nurses per 100,000 inhabitants. The number of nurses per capita increased in most OECD countries over the past decade, at an average rate of 1.8% per year between 2000 and 2009 (OECD, forthcoming).

Figure 10 – Nurses per 100,000 population, 2009 (unless stated)
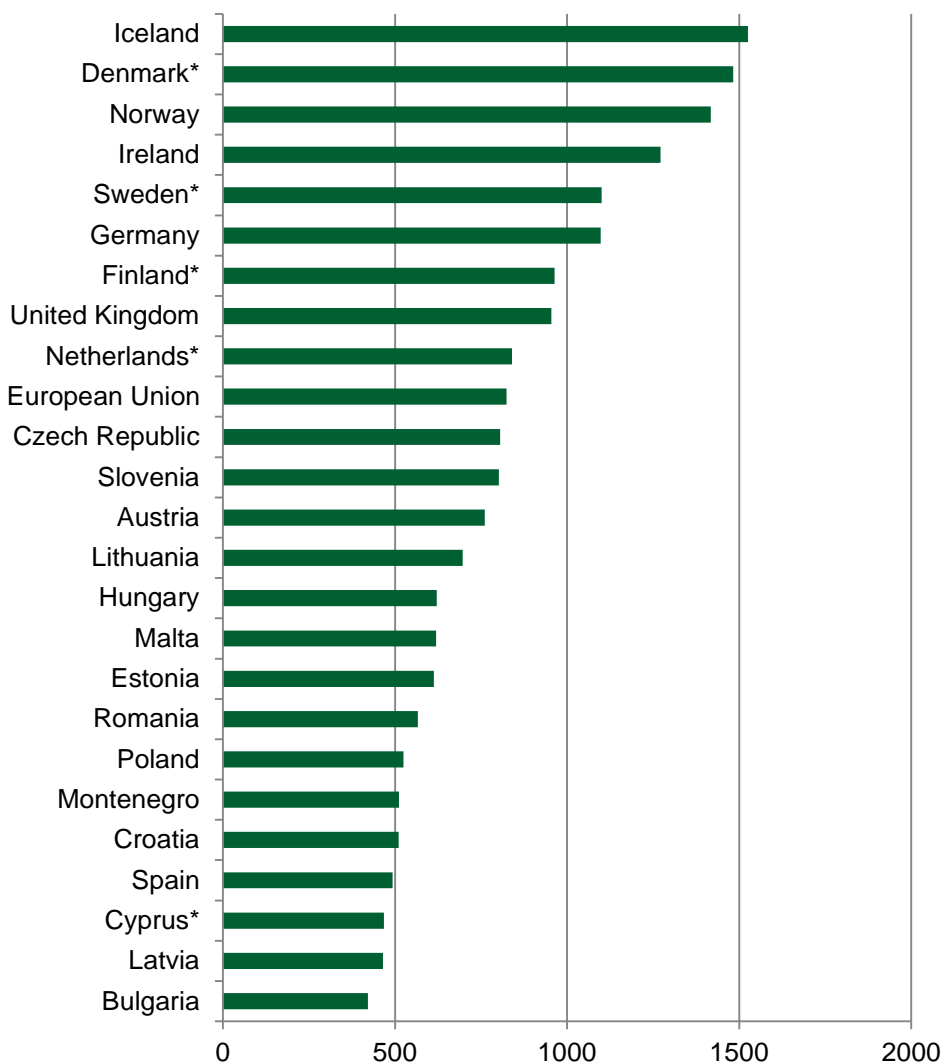
No data for Belgium, France, Greece, Italy, Luxembourg, Portugal, Slovakia, FYROM, Turkey.
*data from 2008; *SOURCE: WHO Health for All Database*

Particularly interesting are figures on the nurse-to-doctor ratio (see Figure 11), which ranged from four or more nurses per doctor in Denmark, Iceland and Ireland to less than one nurse per doctor in Greece and Turkey (OECD, 2010c). Portugal, Spain and Italy also have a ratio of nurse-to-doctor lower than 1.5. In response to shortages of doctors, to make more effective use of available skills and to ensure proper access to care, some countries have developed more advanced roles for nurses (OECD, 2010c). These policies have been supported by reforms of the training system for nurses, combined with efforts to increase the retention of nurses in the profession (OECD, 2010c).

Figure 11 – Nurse-to-doctor Ratio, 2009 (unless stated)
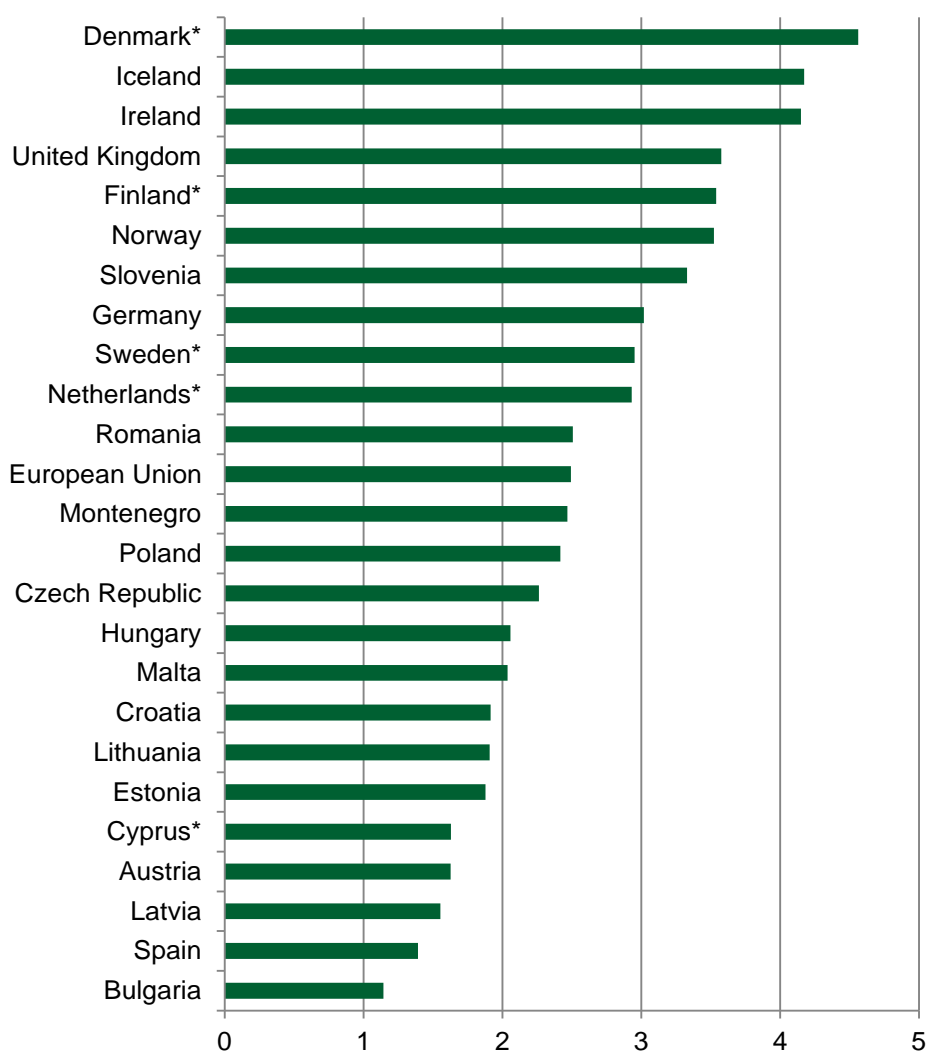
No data for Belgium, France, Greece, Italy, Luxembourg, Portugal, Slovakia, FYROM, Turkey.
*data from 2008; *SOURCE: WHO Health for All Database*

4.7   Dentists

This section provides information on the number of dentists per 100,000 inhabitants. Due to the limited data across countries (using national level sources) and in order to ensure the comparability of the information, we report data obtained from the WHO Health for All Database.

On average, there are approximately 66.2 dentists per 100,000 inhabitants cross EU countries. The number of dentists per capita is highest in Greece, Cyprus and Iceland, where there are more than 90 dentists per 100,000 population. In Eastern and Southern European countries (e.g. Montenegro, Turkey, Poland, Malta, Hungary), there are on average less than 50 dentists per 100,000 population. The variation of number of dentists per capita is relatively low across Europe: it varies between 50 and 100 in most countries, with the notable exception of Greece (131 dentists per 100000 inhabitants) and Montenegro (5.7 dentists per 100000 inhabitants).

Figure 12 – Dentists per 100,000 population, 2009 (unless stated)
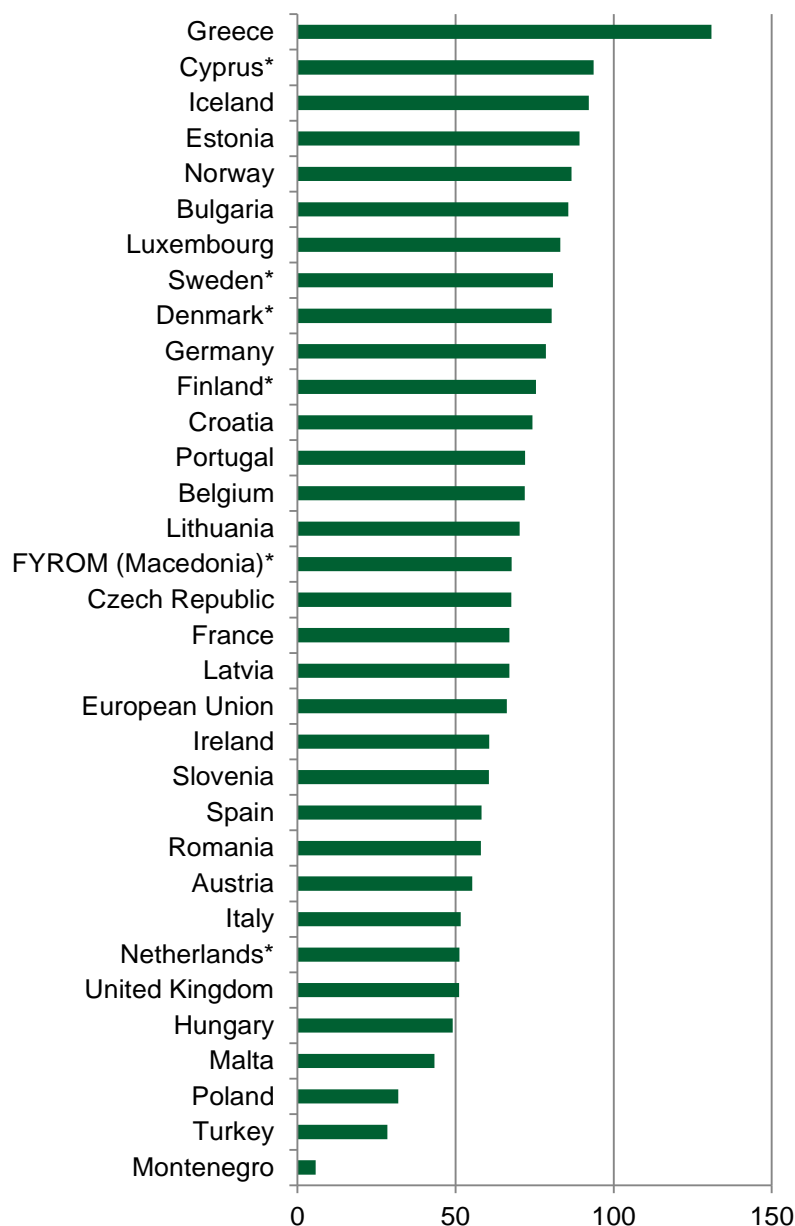
No data for Slovakia. *data from 2008; *SOURCE: WHO Health for All Database*

4.8 Pharmacists

This section provides information on the number of pharmacists per 100,000 inhabitants. Due to the limited data across countries (using national level sources) and in order to ensure the comparability of the information, we report data obtained from the WHO Health for All Database.

On average, there are approximately 77.28 pharmacists per 100,000 inhabitants cross EU countries. The number of pharmacists per capita is highest in Northern and Central European countries and in Italy and Spain, where the number of pharmacists per 100,000 is higher than 80. Denmark and the Netherlands also represent notable exception as they have among the lower number of pharmacists per capita (less than 45).

Figure 13 – Pharmacists per 100,000 population, 2009 (unless stated)
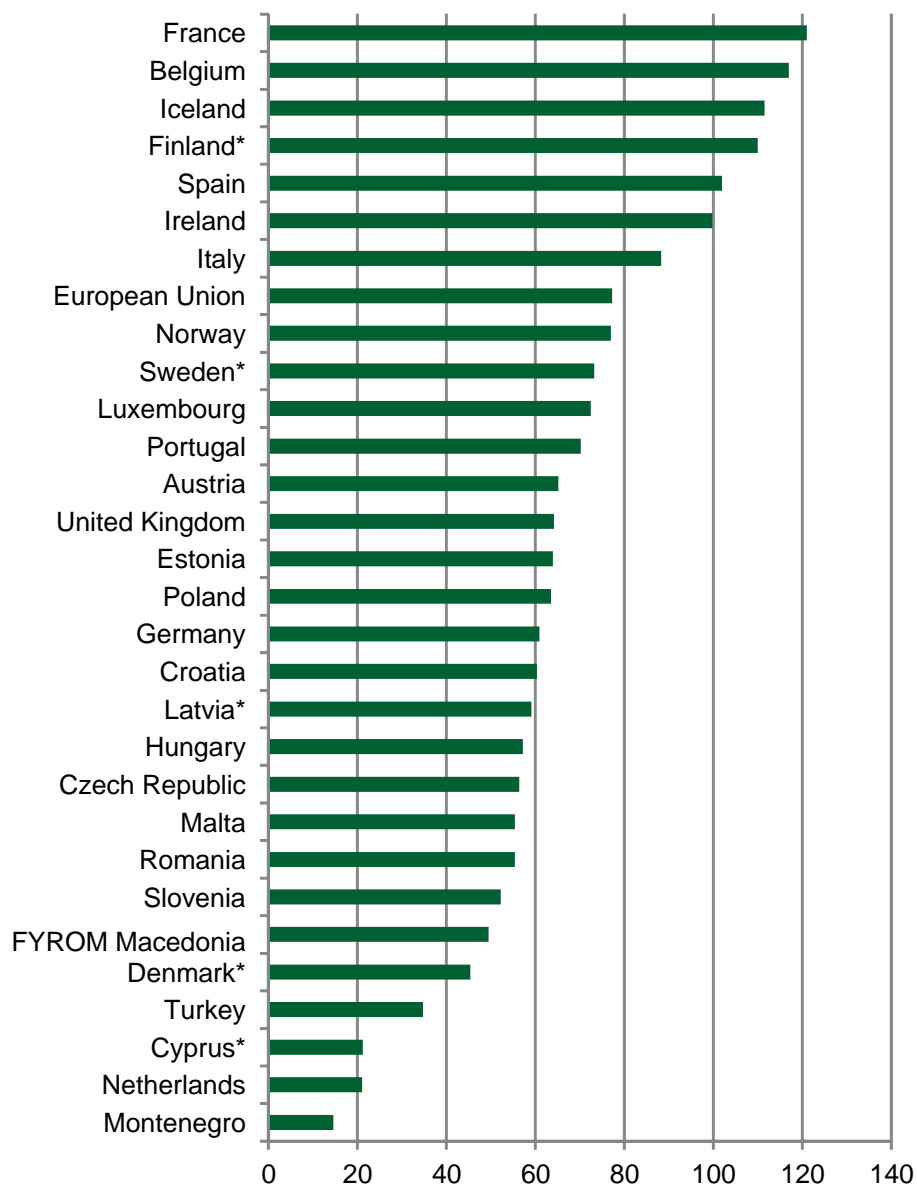
No data for Bulgaria, Greece, Lithuania, Slovakia. *data from 2008
SOURCE: WHO Health for All Database

4.9   Caring Personnel

This section provides information on the number of personal care workers per 1,000 inhabitants. Due to the limited amount of data across countries (using national level sources) and in order to ensure the comparability of the information, the data refer to the OECD Health Database.

Faced with the challenge of ageing population in the European Union, there is **growing concern about the supply of suitably qualified care workers**. In most EU15 Member States, demand for social care services exceeds the supply of resources available, particularly in terms of labour supply (European Foundation, 2006). Whilst in some Central and Eastern European countries, labour supply may currently exceed demand, it is expected that a pattern similar to the old Member States will

emerge (European Foundation, 2006). The general undersupply in the caring profession was noted by stakeholders interviewed as part of the country profiles in Austria, Germany and Norway.

Nevertheless, **there is a general lack of comparable statistical data, in-depth information and evaluation on caring personnel across Europe** (European Foundation, 2006). This is in part explained by the problem of definition: the diversities and complexities of care reflected in a range of providers, organisational settings, location and sources of funding make defining the European care sector difficult. The definition adopted by the OECD distinguishes between practising and professionally active caring personnel and is outlined in the table below.

Table 15 – **OECD Definition of Caring Personnel**

Role	Scope
Practicing caring personnel	
Health care assistants in institutions provide direct personal care and assistance with activities of daily living to patients and residents in variety of health care settings (e.g. hospitals, clinics, and residential nursing care facilities). They generally work in implementation of established care plans and practices, and under the direct supervision of medical, nursing or other health professionals or associate professionals.	**Inclusion:** Nursing aide (clinical and hospital), patient care assistant, psychiatric aide, foreign health care assistants practicing in the country. **Exclusion:** Nurse (professional and associate professional).
Home-based personal care workers provide routine personal care and assistance with activities of daily living to persons who are in need of such care due to effects of ageing, illness, injury, or other physical or mental condition in private homes and other independent residential settings.	**Inclusion:** Home care aide, nursing aide (home), personal care provider, foreign personal care workers practicing in the country. **Exclusion:** Nurse (professional and associate professional), social worker.
Professionally active caring personnel	
Practicing caring personnel and other caring personnel for whom their **education is a prerequisite for the execution of the job**.	**Inclusion:** Caring personnel providing services directly to patients, caring personnel working in administration, management, research and in other posts that exclude direct contact with patients. **Exclusion:** Unemployed caring personnel and retired caring personnel, caring personnel working abroad.

SOURCE: OECD (2011), OECD Health Data 2011: Definition, Sources and Methods

Both the number of practicing caring personnel and the number of professionally active caring personnel per 1,000 population vary across Europe (see table below). Some estimates have been made about the size of the workforce in the care sector. The largest care workforce is found in Denmark (10% of health workforce), followed by Sweden (9%), the Netherlands and the UK (8%); in Hungary, less than 5% of all health workers are employed in the care sector (Cameron, 2002). As for nurses, the number of practicing and professionally active caring personnel per capita is highest in Nordic countries (Finland, Denmark and Norway), where there are over 10 practicing and 10 professionally active caring personnel per 1,000 population.

Figure 14 – Practising Caring Personnel per 1,000 population across European Countries, 2009 (unless stated)
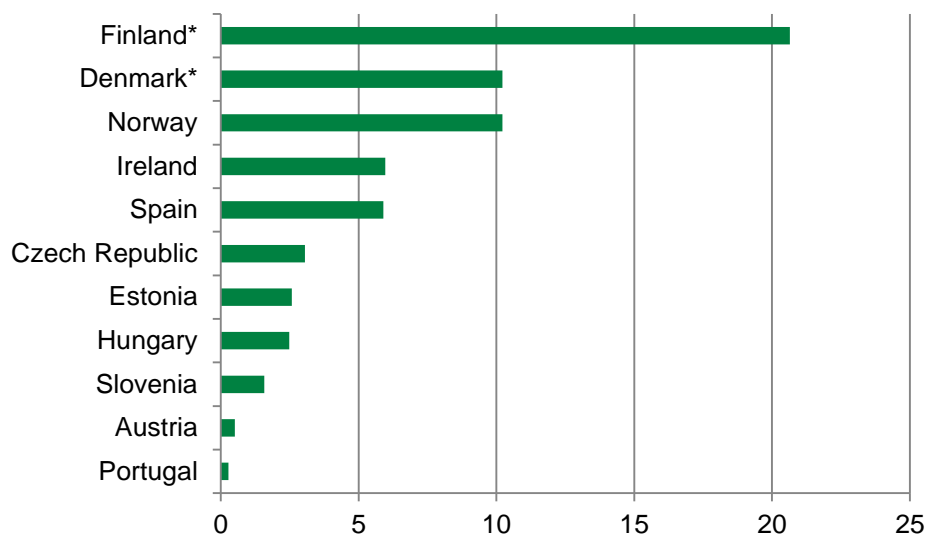
* data from 2008

SOURCE: OECD Health Database

Figure 15 – Professionally Active Caring Personnel per 1,000 population across European Countries, 2009 (unless stated)
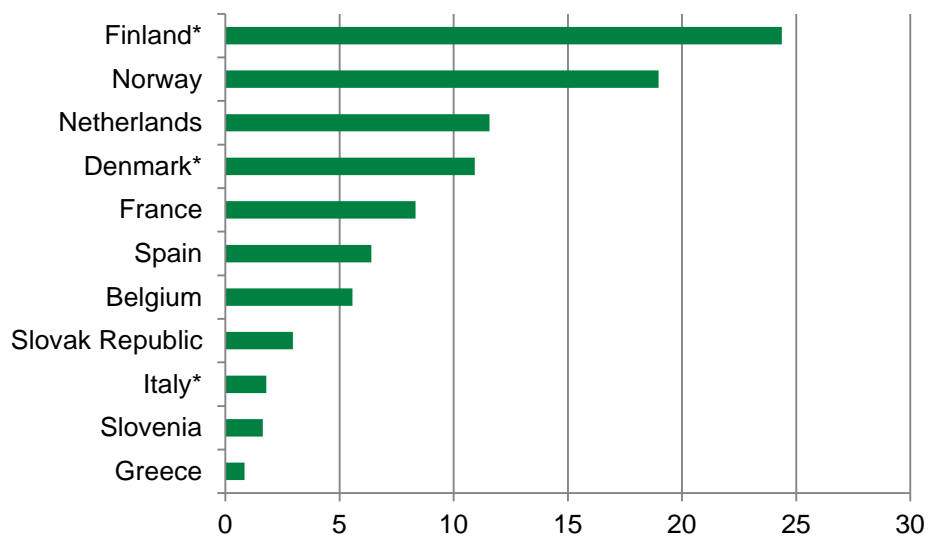
* data from 2008

SOURCE: OECD Health Database

4.10   Students and Trainees for Health Professions

Before presenting data on the number of students and trainees for health professions across 34 European countries, it is important to have an understanding of the significant differences across educational systems in Europe. The structure of the system ultimately influences its functioning and student intakes.

4.10.1   Structure of Education and Training

Education and training systems that prepare health professionals across Europe differ substantially from those for any other profession, in particular in terms of their length. It can take up to 10 years to educate and train a health professional. Table 16 below[60] shows the duration of education and training for health professionals (including physicians, nurses, midwives, dentists and pharmacists) across European countries. Below we also briefly discuss the average duration of training across professions.

a)   Physicians:

The duration of **basic medical training** (including both education and training) averages around 6 years in most European countries. It is longer in Belgium (7 years)[61]. and shorter than 6 years in Malta (5 years), Ireland (4 – 6 years), Sweden (5.5 years) and the United Kingdom (4 - 5 years). However, in these countries, basic medical training is followed by practical training (12 months in the UK, Malta and Ireland, and 18 months in Sweden).

In Belgium, Greece, Italy, the Netherlands and Spain doctors are awarded their license for independent medical practice upon completion of basic medical training. However, in Belgium, the number of health workers that are granted the license to practice is controlled. In other European countries, there are **additional requirements that need to be fulfilled before graduates are allowed to carry out independent medical practice**:

- In some countries there is a probationary period of practical postgraduate education following basic medical training. The length of this training is 6 months in Slovenia, 12 months in Croatia, Iceland, Ireland, Lithuania, Malta and the United Kingdom, and 18 months in Denmark, Germany, Norway, Portugal and Sweden.

- In other countries, namely Austria, Finland, France and also Latvia, specific training in general medical practice or specialist training must be completed before the licence to practice is awarded.

Training for the **general medical practice** in Europe varies from 2 years to 4 years. In the Czech Republic, Romania and Slovakia, however, general practitioners require only the basic medical training of 6 years. Finally, the duration of **specialist medical training** varies considerably across specialisations and across countries.

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[60] Compiled from the Country Profiles as well as:
http://ec.europa.eu/health/healthcare/health_systems_organisation/human_resources/index_en.htm, the EU Manual of Dental Practice (2008) and the WP7 Survey Country Profiles of the Pharmacy Education in Europe (PHARMINE) project (2011)
[61] European Commission. *Human resources in health systems. Introduction.*
http://ec.europa.eu/health/healthcare/health_systems_organisation/human_resources/index_en.htm

b) Other health professions:

Training of nurses and midwives across Europe may take place in universities or vocational schools. The duration of training, as shown in the table below is generally between 3 and 4 years. In Iceland and Spain, training to become a midwife follows the completion of a nursing degree. The duration of the training of dentists in European countries is between 5 to 6 years and for pharmacists training ranges from 4 years (Germany, Italy, Ireland and the United Kingdom) to 6 years (France and the Netherlands). Training for dentists and pharmacists is often, as is the case of physicians, followed by a probationary period of practical training.

Box: Directive on the Recognition of Professional Qualification

With Directive 2005/36/EC, the EU has reformed the system for recognition of professional qualifications, in order to help make labour markets more flexible, further liberalise the provision of services, encourage more automatic recognition of qualifications, and simplify administrative procedures. The Professional Qualification Directive (PQD) has set out three systems for the recognition of qualifications, including **automatic recognition[62] for professions for which the minimum training conditions have been harmonised**. Health professionals (including dentists, doctors, midwives, nurses and pharmacists) benefit from this automatic recognition system.

For recognition purposes, **Directive 2005/36/EC lays down minimum training conditions for each of these professions, including the minimum duration of studies[63]**. These qualifications ultimately enable holders to practise their profession in any Member State. On this basis, the PQD states that the duration of training should be[64]:

- 5 years for **dentists**;

- 6 years, or 5,500 hours for **doctors**;

- 3 years' full-time training + 2 years' professional practice depending on the level of the diploma for **midwives[65]**;

- 3 years full-time study, or 4,600 hours for **nurses**;

- 5 years, including 4 years full-time theoretical and practical study and a 6-month traineeship in a pharmacy for **pharmacists**;

As of 22 October 2010, all Member States had transposed the Directive completely into national law (European Commission, 2010b).

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[62] The other systems include (1) a general system for other regulated professions and (2) recognition of the basis of professional experience for certain professional activities
[63] The Directive also allows Member States to authorise part-time training for all of these professions, provided that the overall duration, level and quality of such training is not lower than that of continuous full-time training.
[64] http://ec.europa.eu/internal_market/qualifications/directive_in_practice/index_en.htm
[65] Or successful completion of general-care nurses' training + full-time midwife training of at least 2 years or 3 600 hours; or successful completion of general-care nurse's training + full-time midwife training of at least 18 months or 3,000 hours + 1 year's professional practice as a midwife.

In the Directive, the Commission stressed the need for continued efforts, in order to take account of considerable changes occurring in the Member States' educational and training systems. For this reason, in 2011, the Commission has issued a Green Paper[66] aimed at gathering stakeholders' views on a modernisation of the Directive. During the consultation[67], Member States expressed their support for an amendment of the Directive, against the background of an increasing demand for highly skilled people across the EU. As a result, the Commission has issued on 19 December 2011 a **proposal for an amendment of the Directive[68].**

The proposal simplifies rules for the mobility of professionals within the EU by offering a **European Professional Card** to all interested professions, which would allow easier and faster recognition of qualifications. The card will take the form of an electronic certificate and it is completely voluntary, thus it would be provided only to professionals that require it. The European Professional Card is in fact associated to an optimised recognition procedure carried out within the existing Internal Market Information System (IMI). IMI was developed by the European Commission (DG MARKT) in order to facilitate the process of recognition by connecting administrations and providing the necessary information. Thus, if widely adopted, the European Professional Card would facilitate the exchange of information between the host and home Member State. It would also make it possible to monitor the career of professionals who establish themselves in various Member States.

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[66] European Commission (2011), Green Paper – Modernising the Professional Qualifications Directive, COM(2011) 367 final, Available at: http://ec.europa.eu/internal_market/consultations/2011/professional_qualifications_directive_en.htm
[67] Available [Online] at: http://ec.europa.eu/internal_market/consultations/2011/professional_qualifications_en.htm
[68] European Commission (2011), Proposal for a Directive of the European Parliament and of the Council,0020amending Directive 2005/36/EC on the recognition of professional qualifications and Regulation on administrative cooperation through the Internal Market Information System, Available [Online] at:
http://ec.europa.eu/internal_market/qualifications/docs/policy_developments/modernising/COM2011_883_en.pdf

Table 16 – **Duration of Education and Training for Selected Health Professions**

	Minimum Duration for Physicians			Minimum Duration for Other Health Professions			
	Basic Medical Training[69]	General Medical Training	Specialist Medical Training	Nurses	Midwives	Dentists[70]	Pharmacists[71]
Austria	6 years***	3 years	Min. of 6 years		4.5 years	6 years	4.5 years
Belgium	7 years	2-3 years	2-6 years	3 years	4 years	5 years	5 years
Bulgaria	6 years		4 -6 years			5.5 years	5 years
Croatia	6 years + 12 months practical training**	4 years[72]	5 years	2-5 years	2-5 years	5/6 years	5 years
Cyprus*	-	-	-	-	-	-	-
Czech Republic	6 years	0 years	5 years compulsory training	3-5 years	3 years	5 years	5 years
Denmark	6 years + 18 months practical training**	3.5 years	4-7.5 years	3.5 years		5 years	5 years
Estonia	6 years		3-5 years	3.5 years	4.5 years	5 years	5 years
Finland	6 years***	3 years	5-6 years	3.5 years	4.5 years	5 years	3 + 2 years
France	6 years***	2.5 years	4-6 years	3 years	4 years	5 years	6 years
Germany	6 years + 18 months practical training**	3-4 years	4-6 years	3 years	3 years	5 years	4 years
Greece	6 years	3 years	4-7 years	4 years	4 years	5 years	5 years
Hungary	6 years			3 years		5 years	4.5 years
Iceland	6 years + 12 months practical training**		Min. 4.5 years	4 years	4 + 2 years	6 years	3 + 2 years
Italy	6 years	3 years	4-6 years	3 years		5 years	4 years
Latvia	6 years***		Av. 3 years	3/4 years	3/4 years	5 years	5 years
Liechtenstein*	-	-	-	-	-	-	-
Lithuania	6 years + 12 months practical training**		3-5 years	3.5/4 years	3.5/4 years	6 years	5 years
Luxembourg*	-[73]		-	3 years		-	-
Malta	5 years + 12 months practical training**			Min. 3 years		5 years	5 years

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[69] For independent medical practice. See also: http://ec.europa.eu/health/healthcare/health_systems_organisation/human_resources/index_en.htm

[70] Source: EU Manual of Dental Practice: version 4 (2008) www.eudental.eu/library/104/files/iceland_2008-20090220-1556.pdf

[71] Source: Pharmacy Education in Europe (PHARMINE) project – Country Profiles, WP7 Survey (2011) http://www.pharmine.org/Pharmine/

[72] General Practitioners must specialise in family medicine

[73] Ministry of Health grants an authorisation to practice medicine on the grounds of a diploma issued in another EU member state. Postgraduate training is not possible in Luxembourg.

	Minimum Duration for Physicians			Minimum Duration for Other Health Professions			
	Basic Medical Training[69]	General Medical Training	Specialist Medical Training	Nurses	Midwives	Dentists[70]	Pharmacists[71]
Macedonia (FYROM)****							
Montenegro****							
Netherlands	6 years	3 years		3-4 years		6 years	6 years
Norway	6 year + 18 months practical training**			3 years		5 years	5 years
Poland	6 years					5 years	5.5 years
Portugal	6 years + 18 months practical training**	3 years	4-6 years	2+2 years		5 years	5 years
Republic of Ireland	4-6 years + 12 months practical training**	3 years		Mainly train abroad		5 years	4 years
Romania	6 years	0 years				5 years	5 years
Slovakia	6 years	0 years	3-6 years		3 years	6 years	5 years
Slovenia	6 years + 6 months practical training**			3/4 years		6 years	5.5 years
Spain	6 years	4 years	4-5 years	4 years	4 + 2 years	5 years	5 years
Sweden	5.5 years + 18 months practical training**	5 years	5 years	3 years		5 years	5 years
Turkey****							3 + 2 years
United Kingdom	4/5 years + 12 months practical training**	3 years	3-7 years	3-4 years	3 years	5 years	4 years

Primary training of health care professionals primarily takes place abroad.
*** Probationary period of practical postgraduate training*
*** Information not available.*
**** Licence for independent medical practice only issued upon completion of general medical practice or specialist training.*

4.10.2 Number of Graduates

Information on the number of new graduates for the health professions in 2008 and 2009 was available for 30 countries. This included statistics on medical professions such as general physicians, nurses, midwives, pharmacists and dentists. France and Greece only had data for 2007 whilst Liechtenstein reported no data at all. In the 30 countries where data on graduates were available, not all professions were covered. France, Greece, Liechtenstein and Montenegro were excluded as they did not have data on graduates for 2008 or 2009.

There are 6 broad observations to make regarding graduates in the different health professions.

1) The countries with the highest proportion of graduate doctors in relation to their population in 2009 were Austria (2008 data cited), Poland and Malta, while the countries with the lowest proportion of graduate doctors were Bulgaria, Turkey and Latvia.

2) Slovakia, Denmark and Norway had the highest proportion of graduate nurses in 2009, all having over 50 graduate nurses per 100,000; far fewer graduate nurses were found in Bulgaria, Turkey, Malta, Czech Republic and Italy.

3) The number of graduate nurses per 100,000 population is much higher than the number of graduate doctors, midwives, pharmacists and dentists, in most countries but Bulgaria, Turkey and Malta.

4) Poland, Ireland and Finland had the highest proportion of graduate midwives respective to their population, while Austria, Latvia and Luxembourg had the lowest number.

5) Graduate pharmacists were especially prominent in Finland, Portugal and Iceland, and less so in Turkey, Netherlands and Moldova.

6) Finally, Portugal, Romania and Lithuania had the highest proportion of graduate dentists with respect to their population; graduate dentists were less common in Netherlands, Slovakia and Turkey.

It appears that eastern and southern European countries have far fewer graduates with respect to their population compared with western and northern European countries. Exceptions to the rule include Poland which has a high proportion of graduate midwives; Romania has a high proportion of graduate doctors, nurses and dentists despite low rates of health expenditure. Differing rates of graduation may therefore depend less on financial resources and more on political priorities (with Romania for example, focusing its financial resources on producing more graduates).

Table 17 – Number of Graduates in the Health Professions per 100,000 population (2009, unless stated)

Country	Graduate Doctors	Graduate Nurses	Graduate Midwives	Graduate Pharmacists	Graduate Dentists
Austria (2008)	23.61	58.66	0.54	2.65	1.42
Belgium	7.99	n/a	n/a	n/a	1.44
Bulgaria	6.63	4.93	1.54	2.81	3.06
Czech Republic	12.57	13.89	1.92	3.01	3.88
Denmark	14.72	78.27	1.84	2.41	3.57
Estonia	8.95	35.22	2.84	3.95	3.95

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Country	Graduate Doctors	Graduate Nurses	Graduate Midwives	Graduate Pharmacists	Graduate Dentists
Finland	9.37	57.62	3.33	7.55	7.55
Germany	12.47	27.49	0.7	2.27	n/a
Hungary (2008)	9.19	31.46	0.44	2.74	2.18
Iceland	11.59	64.84	3.76	7.2	1.88
Italy	11.1	17.98	1.38	4.27	2.56
Latvia	7.14	18.98	0.4	4.35	1.51
Lithuania	11.83	19.22	0.69	4.46	4.4
Luxembourg	n/a	18.31	0	n/a	n/a
Malta	14.76	12.34	2.18	6.77	1.45
Netherlands	9.84	39.28	0.89	0.78	0.74
Norway	10.69	72.23	2.28	3.83	2.69
Poland	16.17	33.05	3.92	3.52	1.7
Portugal (2008)	7.31	22.09	4.73	3.24	2.47
Republic of Ireland	10.36	32.87	n/a	7.55	5.66
Romania	12.92	57.7	0.67	4.31	4.94
Slovakia	8.49	152	2.14	4.69	0.98
Slovenia	8.45	20.62	n/a	4.89	2.81
Spain	7.93	n/a	1.37	4.65	1.71
Sweden	10.66	n/a	2.94	4.32	2.11
Turkey	7.01	5.97	1.73	0.52	1.28
United Kingdom	9.2	29.56	2.12	n/a	n/a

SOURCE: WHO Health for All Database

Figure 16 – Number of Graduate Doctors and Nurses per 100,000 population, 2009 (unless stated)
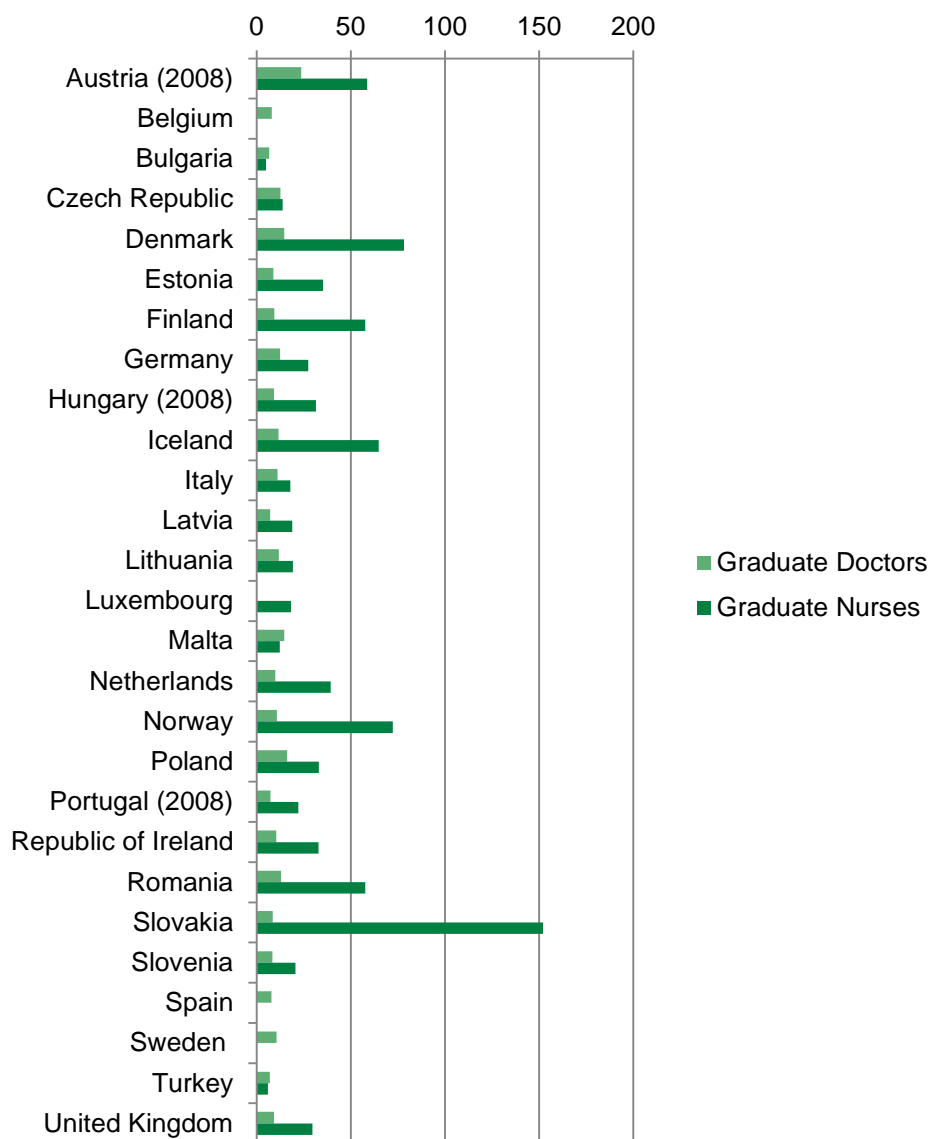
SOURCE: WHO Health for All Database/OECD Health Database

Figure 17 – Number of Graduate Midwives, Pharmacists and Dentists per 100,000 population, 2009 (unless stated)
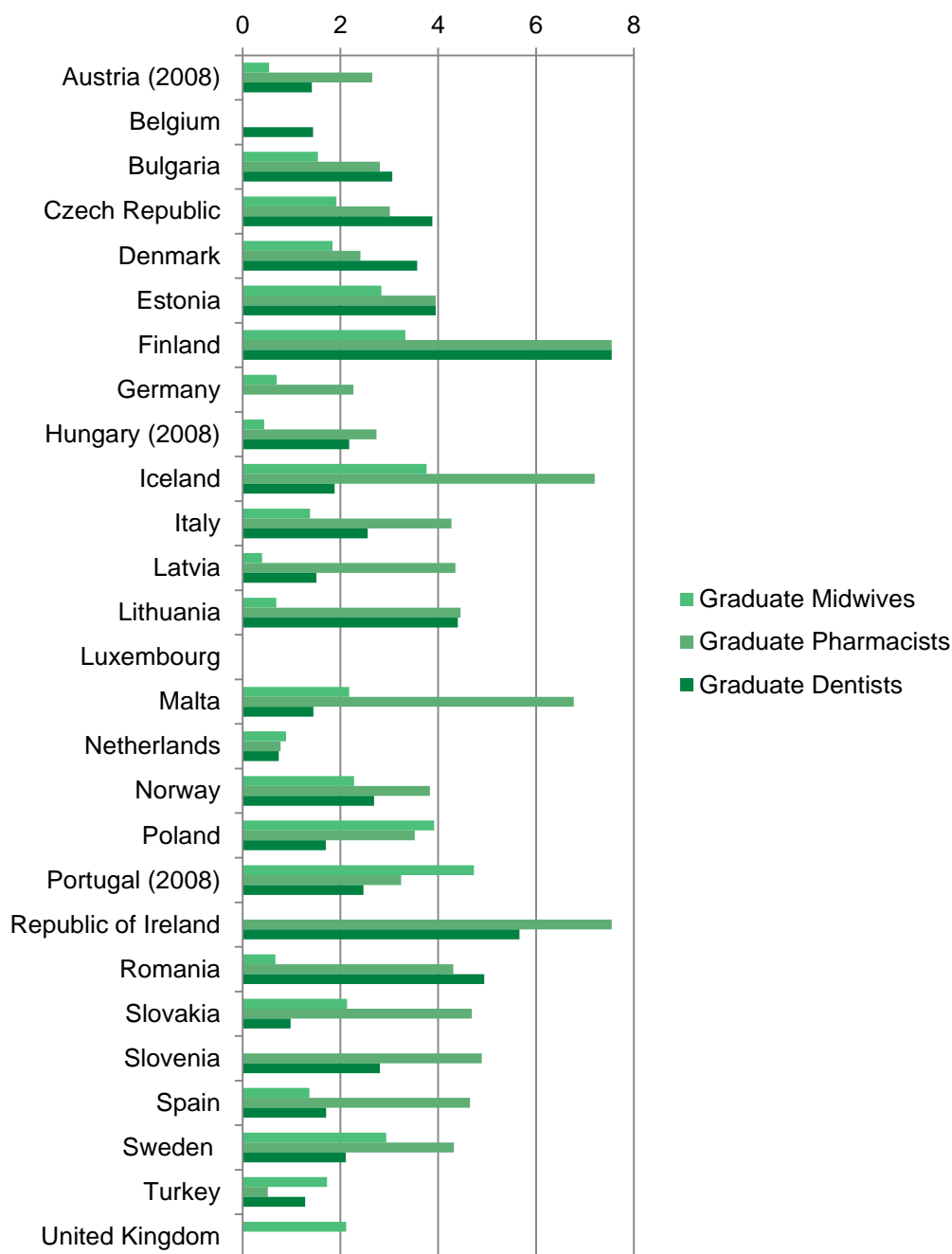
SOURCE: WHO Health for All Database

The figures above have outlined the current situation with respect to the number of graduates in the Member States. In order to have a better understanding of how the number of graduates across different health professions has evolved over time, it is also worthwhile looking at the trend in supply of different health workers at EU level. More detailed trend data broken down by Member State can be found in the Annex.

Overall, the figures outline an upward trend in the number of graduate health professionals per population. Population growth has already been factored in, as the numbers are measured per

100,000 inhabitants. This suggests that every year there are more professionals graduating, which are able to serve the need of a growing and ageing population. However, two considerations are necessary. Firstly, not all graduating health professionals will necessarily enter the health workforce. Some of the graduates might move into a different sector where their degree could be useful or might move abroad. Secondly, the increasing number of graduating health professionals might still not be sufficient to meet the needs of an ageing population. For this reasons, the fact that the number of health professionals graduating across Europe has increased does not necessarily mean that there will not be a shortage of health professionals across Europe.

When it comes to graduate physicians, the figure below reveals that the number of physicians per population graduating across the EU has increased overall between 2002 and 2009. There are however considerable differences across the Member States. For example, in Belgium, Bulgaria and Estonia, the number of graduate physicians per population has actually decreased, while in Latvia it increased by 54%, much faster than the EU average.

Figure 18 – Trend in Graduate Physicians per 100,000 population, EU average
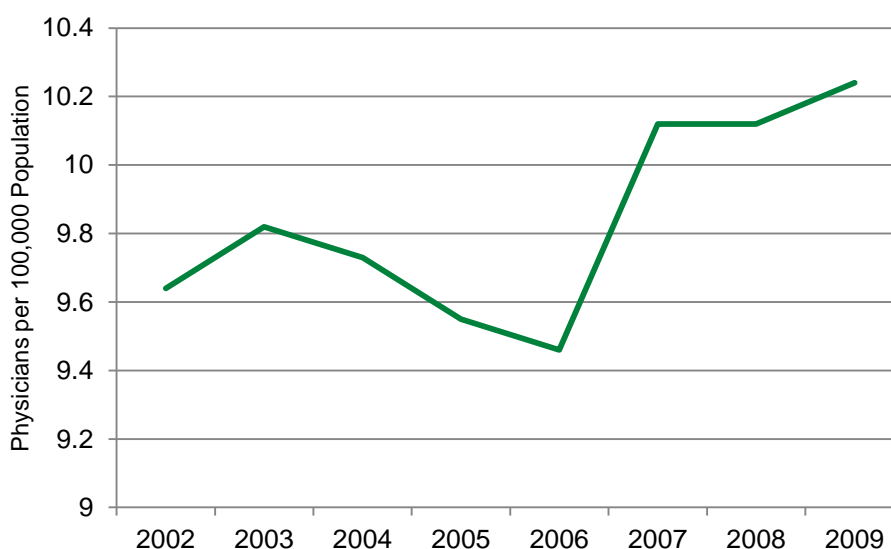
SOURCE: WHO Health for All Database

Similarly to the case of physicians, the overall trend for nurses is positive with Poland and Portugal outpacing other countries. Nonetheless, other Member States such as Bulgaria, the Czech Republic, Denmark and Luxembourg report considerable decreases in the supply of graduate nurses over the past decade.

Figure 19 – Overview Trend in Graduate Nurses per 100,000 population, EU average
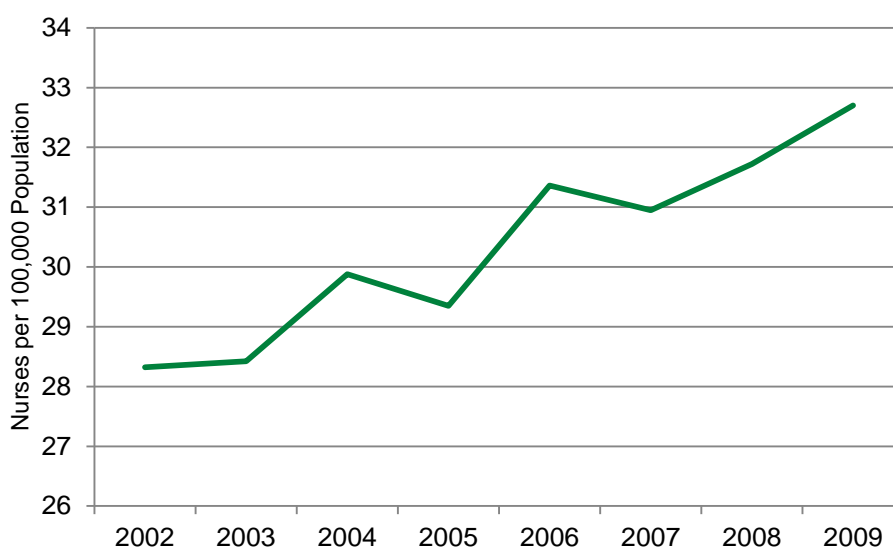
SOURCE: WHO Health for All Database

The number of midwives educated in the EU has remained relatively stable over the last couple of years. Countries with a big increase in the number of graduate midwives are Malta (+600%), Denmark (+97%) and Sweden (+84%). At the same time, countries like Latvia, Lithuania, Luxembourg and Slovenia struggle with a sharp decrease in the number of midwives graduating.

Figure 20 – Overview Trend in Graduate Midwives per 100,000 population, EU average
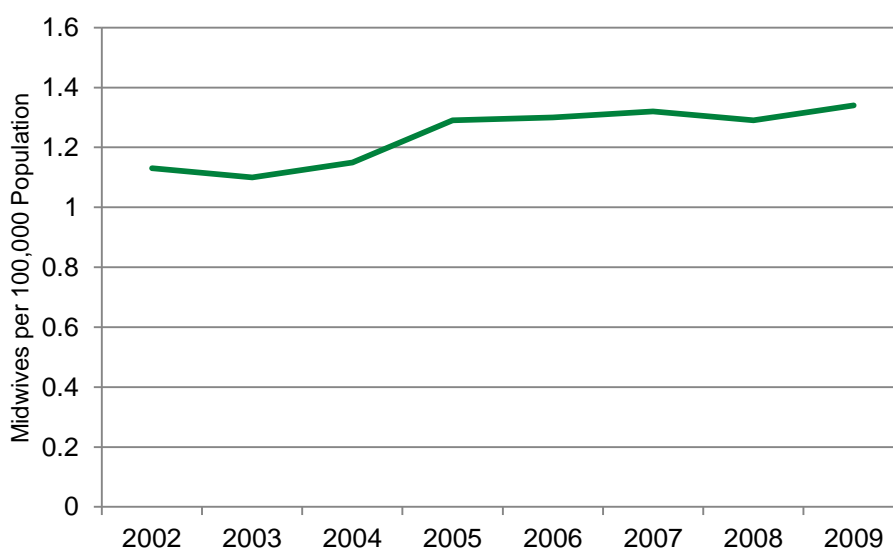
SOURCE: WHO Health for All Database

For graduate pharmacists, no clear trend is observable. While Finland, Ireland, Latvia and Portugal report a large increase in the number of graduates, countries such as Malta and the Netherlands have to cope with decreasing numbers of graduate pharmacists.

Figure 21 – Overview Trend in Graduate Pharmacists per 100,000 population, EU average
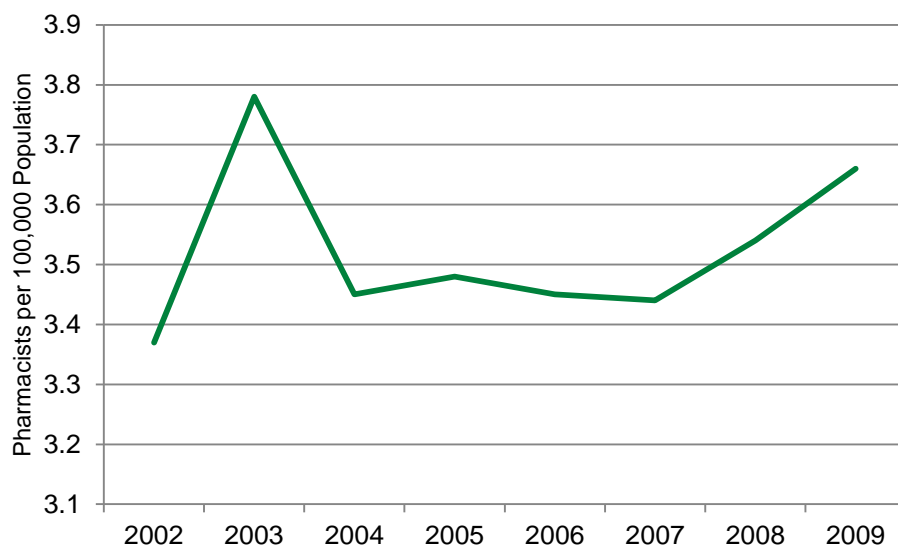
SOURCE: WHO Health for All Database

At EU level, the number of graduate dentists has been moderately increasing since 2002. The Czech Republic, Latvia, Lithuania and Sweden show particularly fast growth in the number of graduate dentists. Other countries such as Bulgaria, Malta and the Netherlands witness more or less strong decreases in the density of graduate dentists.

Figure 22 – Overview Trend in Graduate Dentists per 100,000 population, EU average
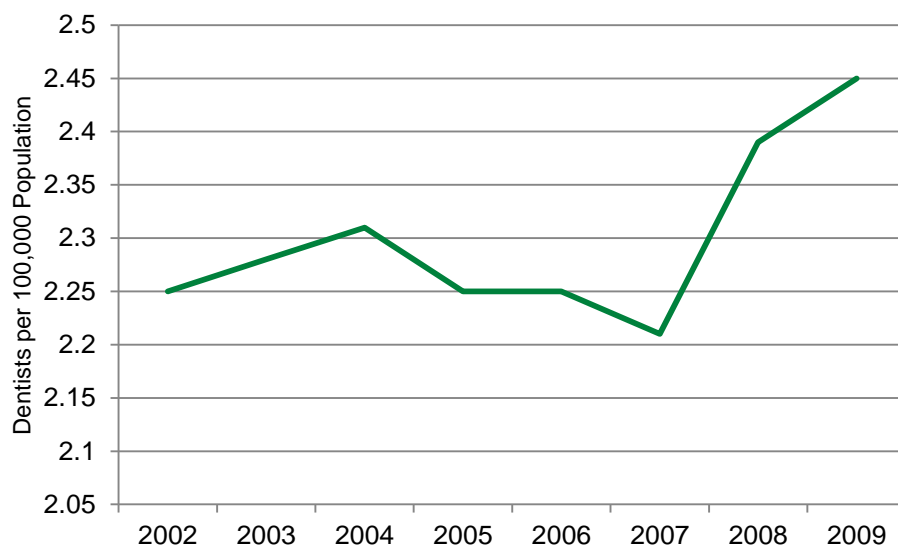
SOURCE: WHO Health for All Database

4.11 Possible Shortages in Health Workforce

While the sections above offer a comprehensive overview of human resources for health in different European countries, they do not clarify whether countries will be facing shortages in human resources for health in the future. **Estimating whether human resources for health will be sufficient to meet the health needs of the population is one of the main purposes of health workforce planning.** These estimates are based not only on current stocks of health workers, but also on projections of future supply and demand of human resources for health.

Not all European countries have developed the tools[74] to obtain estimates on present and future health workforce shortages or excesses. Moreover, due to differences in data collection, indicators used and definitions, the comparability of estimated shortages or excesses across countries remains limited. The table below present available examples of health workforce shortages in different European countries; our analysis and evidence did not identify any example of countries in which there are present or expected future excesses in the number of health workers.

The degree to which European countries face shortages of healthcare personnel varies considerably. A few countries such as Bulgaria, the Netherlands and the UK already witness shortages at national level. Many other countries such as Denmark, France or Germany currently have no shortage of health workforce overall, but have a problem with geographic misdistribution as they lack appropriate supply particularly in rural areas. Other countries such as Spain have to cope with professional misdistribution and are in need of additional staff in certain specialisms while they report surpluses in others.

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[74] An overview of the sophisticated models and tools implemented by European countries in order to develop these estimates will be presented in Section 6.2.

Table 18 – Information on health workforce shortages in selected Member States

Country	Qualitative information	Quantitative data
Austria	Shortages exist predominantly in care personnel in homes for long-term care (about 2,000 posts)[75] and in the outpatient sector[76].	According to a survey, **35% of health care facilities** interviewed **experience shortages** in workforce supply[77].
Bulgaria	There is an acute shortage of nurses and a shortage of medical specialists (in particular anaesthesiologists, gynaecologists and paediatricians).	One pressure point is the mental health care network where the ratio of specialists per 10,000 is particularly low (0.8 psychiatrists, 1.4 neurologists, 1.7 nurses)[78].
Denmark	From the year 2000 onwards, there has been a shortage of doctors in certain specialisations and certain geographical areas outside the three university cities[79] and in the countryside where doctors are being recruited from neighbouring countries[80].	
Finland	Since the late 1990s, there has been a significant shortage of physicians in Finland, partly due to reductions in intake into training. Shortages are particularly severe in health centres in remote rural municipalities[81]. Currently, the shortage is especially significant among dentists[82].	In 2011, the shortage of physicians in health centers and hospitals is 6.5% (has fallen) and 9%, respectively.[83] Forecasts of job openings from 2008 to 2025 suggest that the population health needs will need to be matched by an increasing supply of health workers: 235,450 job openings in the health care and social sector (equals an annual increase of vacancies of 13,080)[84]. The precise number of jobs openings for the various health professions within the same time frame are[85]:

[75] http://www.shs-seniorenheime.at/i-make.php?user=shs_seniorenheime&vorlage=vorlage.php&file=de/newsletter/09_10_Oktober.htm
[76] Hofmacher, Maria and Herta Rack (2006) Austria Health system review. *Health Systems in Transition* 8 (3): p. 155
[77] Gaubitsch, Reinhold and Michael Luger (2010) Zum Fachkräftemangel in Österreich. *Arbeitsmarktservice Österreich.* p. 8
[78] Georgieva, Lidia et al. (2007) Bulgaria Health system review. *Health Systems in Transition* 9 (1): p. 119
[79] National Board of Health (2010): 'Forecast of supply of doctors 2010-2030' pp. 5-6
[80] Strandberg-Larsen, Martin et al. (2007) Denmark Health system review. *Health Systems in Transition* 9 (6): p. 87
[81] Mladovsky, Philipa and Elias Mossialos (2008). Health Systems in Transition. Finland. Health System Review. 10 (4): *European Observatory on Health Systems and Policies.* p. 26
[82] ibid. p. 91
[83] Finnish Medical Association, study on physicians´availability in health centres (study date October 5, 2011);
KT Local government employers, study on pysicians´availability in hospitals (study date October 5, 2011).
[84] Ministry of Education and Culture. Towards balanced development of employment 2025. Proposal for targets 2016. Reports 2011:16: p. 73-74. Available at:
http://www.minedu.fi/export/sites/default/OPM/Julkaisut/2011/liitteet/tr16.pdf?lang=fi
[85] Hanhijoki, Ilpo, Katajisto, J., Kimari M., Savioja, H. 2009. Education, Training and Demand for Labour in Finland by 2020. p. 52. Available at:
http://www.oph.fi/download/110071_Education_training_and_demand_for_labour_in_Finland_by_2020.pdf

Country	Qualitative information	Quantitative data
		33,600 – 39,000 (practical nurses) 51,800 – 60,400 (nurses & other health care professionals 13,900 – 17,300 (Medical doctors & other health professionals)
France	There already is a shortage of public health specialists[86]. Physicians and nurses are geographically unequally distributed; shortages exist in some areas and are likely to occur more frequently in the future[87]. Shortages are reported for obstetrics, gynaecologists, and some other specialties[88].	
Germany	Doctors associations insist there is a lack of medical doctors, although some associations say that unequal distribution rather than a shortage is the problem. The problem seems to be concentrated in the less affluent and sparsely populated regions of eastern Germany[89]. There is also a shortage of elderly care nurses.	While the number of doctors per inhabitant has increased in the past[90], a study by PwC reports that there was a shortage of 17,000 doctors in 2010 and that this will increase to a shortage of 45,000 doctors by 2020 and 165,000 by 2030. At the same time, medical employees other than doctors will witness a shortage of 150,000 in 2020 and nearly 800,000 in 2030[91].
Hungary	Shortages are prevalent for specialists (in particular for diagnostics, public health and paramedical professions[92]) and are foreseeable for physicians and nurses due to an ageing of the workforce.	Out of 35,169 medical posts in 2008, some 4% were unfilled, implying both regional disparities and differences among specialties. At the same time, 19% of available posts of public health physicians were vacant and 13% of posts of physicians[93].
The Netherlands	Currently there are shortages of specialists for mentally disabled, youth health care physician, and specialists in geriatric medicine. Also it is expected that in a few years there will be a shortage of nurses in homes for the elderly and in nursing homes.	

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[86] Chevreul, Karine et al. (2010) France Health system review. *Health Systems in Transition* 12 (6): p. 152
[87] Ibid. p. 155
[88] Wismar, Matthias et al. (2011) Health Professional Mobility. Evidence from 17 European countries. Full Report. p. 193
[89] ibid. p. 211
[90] Busse, Reinhard and Annette Riesberg (2005). Gesundheitssysteme im Wandel. Deutschland. p. 141
[91] Ostwald, Dennis et al. (2010) Fachkräftemangel. Stationärer und ambulanter Bereich bis zum Jahr 2030. *PriceWaterhouseCoopers.* p. 35
[92] Gaal, Peter et al. (2011) Hungary Health system review. *Health Systems in Transition* 13 (5): p. 119
[93] ibid. 116

Country	Qualitative information	Quantitative data
Spain	Shortages for 2020 are forecasted for paediatrics, orthopaedics and traumatologists, obstetricians and gynaecologists, ophthalmology and plastic surgery, as well as multidisciplinary specialisms such as immunology and biochemical clinics[94]. Further shortages persist of specialists in anaesthetics, reconstructive surgery, family and community medicine, radiology and urology. Surpluses of more than plus 10% can be identified for allergists, clinical analysis, haematologists, internists, nuclear medicals, microbiologists, neurosurgeons, amongst others.	Forecasting models estimate a shortage of 2% of medical specialists (including GPs) in 2008 which is forecasted to increase to 14% by 2025[95]. At the same time, the ratio of medical specialists will decrease from 358 per 100,000 inhabitants in 2015 to 346 in 2025.[96] The stock of nurses and midwives is estimated to increase from 233,867 to 241,594 from 2015 to 2025. While the number of nurses and midwives per 100,000 inhabitants will increase from 508 to 532[97]. Given this information, it appears that a shortage in this sector is currently not a major issue in Spain.
UK	While the Department of Health suggested in 2007 that demand for staff was now equal to supply[98], other sources report **possible shortages in some specialities,** including some medical specialties and specialist nurses. However, a study from the Centre for Workforce Intelligence on the medical workforce suggests that if services continue to be delivered as they are at present, then by 2020 the NHS will have 2,800 more consultants (across all specialties) than required, given the number currently being trained.[99]	The NHS vacancy rate for the total medical and dental staff (excluding training grades) was 4.4% in 2010. For other doctors and dentists[100] in particular it was 7.3% but this should be viewed in the context of an increase in all medical staff since 2004. Broken further down, the highest vacancies occurred within clinical psychology (4%), pharmacy (3.4% vacancy rate), other physiological sciences (2.9%), cardiology (3.7%) and clinical physiology (4.0%), to name a few.[101] By 2014 the average number of entry-level posts for specialty training will be around 6511.[102]

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[94] Garcie-Armesto, Sandra et al (2010). Health Systems in Transition. Spain. Health System Review. 12 (4): Spain Health System Review. *European Observatory on Health Systems and Policies.* p. xxvii

[95] Barber- Perez, P. et al. 2011. *Oferta y necesidad de especialistas médicos en España (2008-2025).* p. 14

[96] Barber-Perez, P. Et al. 2011. *Oferta y necesidad de especialistas medicos en España (2010-2025).* p. 196

[97] Blanco, Juan et al. 2011. Informe sobre profesionales de cuidados de enfermeria. Oferta – Necesidad 2010-2025. p. 130

[98] Bridget, Anderson et al. (eds.) (2010) Who Needs Migrant Workers? p. 9

[99] Centre for Workforce Intelligence. 2012. Shape of the Medical Workforce: Starting the Debate on the Future Workforce. p. 31. Available at: http://www.cfwi.org.uk/publications/leaders-report-shape-of-the-medical-workforce

[100] Other doctors and dentists - includes all HCHS medical and dental posts normally occupied by staff other than training grade or consultants

[101] http://www.ic.nhs.uk/webfiles/publications/vacanciessurvey10/NHS_Vacancies_Survey_England_31_March_2010.pdf. p. 15.

[102] Centre for Workforce Intelligence. 2012. Shape of the Medical Workforce: Informing Medical Training Numbers. p. 4.

5.0   Mobility Trends (Deliverable 4)

This section provides an overview of professional and geographical mobility trends of health workforce (Deliverable 4). After a brief overview of the complexity of monitoring mobility both at country level and at European level, we present evidence on mobility trends across countries, based on information available from national and international sources (e.g. Prometheus project, WHO, etc). We then outline some of the common key issues.

5.1   Conceptual Overview

European health policy-makers point to geographical health workforce imbalances as a key challenge in Europe, and to migration as one determinant of this challenge (Wiskow, 2006). According to the OECD (2007), one of the measures adopted by European countries to meet workforce shortages is to encourage international migration. Countries are competing to attract and retain human resources for health with both inflows and outflows of health workers intensifying, even though some European countries are more affected than others. This inevitably raises concerns in both sending and receiving countries and presents a clear rationale for EU level initiatives.

The flow of human resources for health can have multiple consequences not only for the composition of health workforce, but also for the delivery of health care services (Prometheus, 2011). In particular, these concerns are related to the outflows of skilled health labour from East to West European countries (WHO, 2004).

- Health professional mobility impacts on the **performance of health systems by changing the composition of the health workforce in both sending and receiving countries**. Health workforce gains and losses may strengthen or weaken the performance of health systems and, while they may seem negligible initially, produce visible impacts when numbers increase as a result of continuous mobility over years.

- Health professional mobility also affects the **skill-mix since skills travel with the mobile health professional.** When these skills are rare and essential, outflows of even small numbers of health professionals can impact on health system performance.

- Health professional mobility can also affect the **distribution of health workers within a country**. A disproportionately high outflow from a region may cause or aggravate misdistribution, resulting in under-supplied areas in which the local population is left without sufficient health workers. However, the impacts on health system performance are often indirect and part of a complex chain of causalities.

Moreover, health workforce mobility (both geographical and professional) might represent a missed return on investments. Countries invest a significant amount of

resources in order to train a number of health workers that is sufficient to meet the population's health needs. If a share of health workers trained in a country does not enter the profession, or leaves the profession, or migrates to another country, the health needs of the population are not likely to be met. Moreover, resources allocated to the training of those professionals would not originate any return and would instead represent a loss in terms of taxable income. Therefore, health workforce migration can represent a loss in terms of capacity, taxable income and return on investments. While the freedom of health personnel to migrate to countries that wish to admit and employ them should not be limited, geographical migration should be monitored and, if possible, forecasted, in order to plan for health workforce accordingly.

5.1.1   Mobility Types

Data on flow of human resources for health should include information on both professional and geographical movements of health staff. The table below reports some of the indicators that could be explored as part of health workforce mobility data collection.

Table 19 – Flow Data

Professional Flows	Geographical Flows

• Entering the workforce (from education and training)
• Within health sector
  ○ From public to private
  ○ From one health profession to the other
• Leaving the workforce (retirement or other reasons)
	• Within country (across regions; urban/rural areas)
	• Across European countries
	• From and to non-European countries

Besides the distinction between professional and geographical flows, ILO (2004) distinguishes between three main types of migration depending on the length of stay:

- **permanent migration**; mainly for highly skilled migrants, family reunification and refugee settlement;

- **temporary migration for permanent employment**, for migrants to take up all kinds of employment, to fill vacant posts, such as nursing positions;

- **temporary migration for time-bound employment**, for migrants that take up seasonal jobs or jobs that will end with a project, and services providers, trainees and students.

Multiple dimensions thus have to be taken into account in order to grasp the complexity of the health workforce mobility phenomenon. Inevitably some of these dimensions are more relevant than others, as the magnitude of the flow is likely to vary. For instance, the number of workers that move from one health profession to the other

is likely to be limited, while the number of health workers leaving the profession for different reasons is substantial.

5.1.2   Direction of migration

As mentioned above, there are two main types of migration: professional migration and geographical migration. Within each of these categories, it is possible to identify different levels and different directions of migration. The paragraphs below briefly describe possible directions of migration within each of the two broad categories.

Professional migration
Figure 23 below presents the different types and the different directions of professional flows of health workers. It is possible to identify two main levels of professional mobility:

   a. **In and out of the health sector**:

   - o   From education (university or professional)

   - o   From and to training: this will include in particular short term training

   - o   From and to other sectors

   - o   To retirement or other temporary leave

   b. **Within the health sector:**

   - o   Across professions

   - o   Across private and public sectors

Figure 23 – Different Directions of Professional Migration
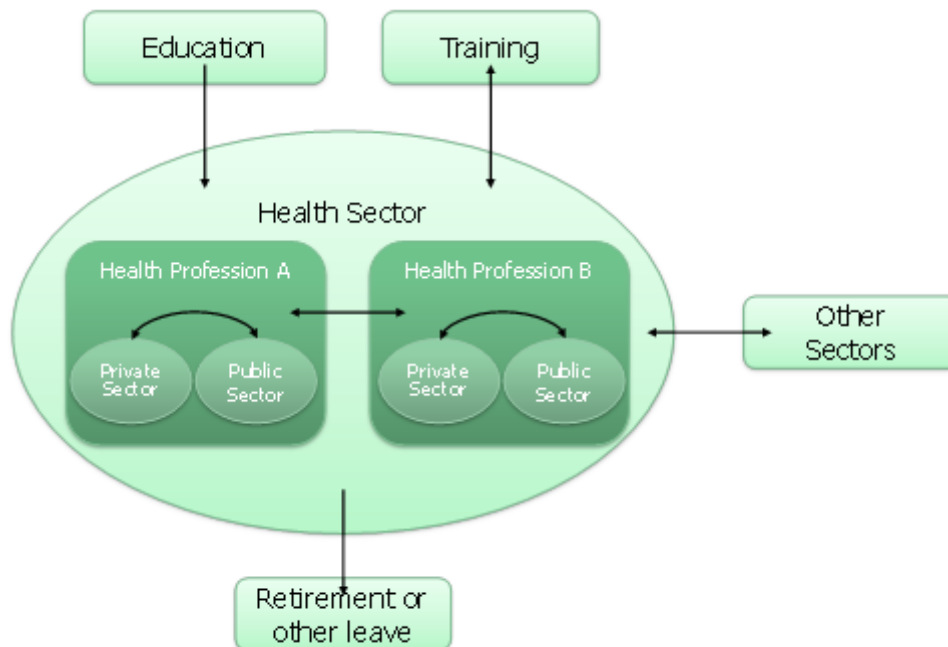
Geographical migration

Similarly, there are multiple levels and directions of geographical migration:

a) **International level**

   o From outside Europe to Europe and vice versa

   o From one country in Europe to another country in Europe

In particular, international migration distinguishes between the following groups (Prometheus, 2011):

- **Foreign-trained health workers** (i.e. any health worker who was trained in a country other than the one where he/she resides and practices)

- **Foreign-born health workers** (i.e. any health worker who was born in a country other than the one where he/she resides and practices)

- **Foreign-national health workers** (i.e. any health worker who is not a citizen or permanent resident of the country where he/she resides and practices)

When monitoring the direction of migrants, concerns are particularly related to a significant flow of health workforce from East to West. It appears that these movements have been triggered in particular by the European Union enlargement and the creation of a Single Market and they may stem from socio-economic disparities between Eastern and Western European countries (Wiskow, 2006).

On the one side, this has raised concerns in receiving and sending countries. Sections of the population and politicians in Western European countries developed fears regarding the potential influx of cheap labour in times of structural unemployment in their own countries. Politicians in Eastern European countries were concerned about potential outflows of their young and qualified workforce, weakening their countries productivity and development prospects. On the other hand there was hope regarding the positive effects of migration, notably a reduction of unemployment and an increase in remittances (Moreno-Fontes Chammertin, 2005).

On the other side, migration of health workforce across European countries appears to be a solution to shortages in Western European countries. The European Union enlargement is gradually opening labour markets, offering extended opportunities to recruit from abroad (Wiskow, 2006).

b) **National level:**
   o From one region to another region
   o From countryside to urban areas and vice versa

Western countries in particular have expressed concerns regarding national level mobility. Misdistribution of health personnel between regions and between urban and rural areas has often been identified as one of the main concerns of health workforce planners and ultimately as one of the main reasons for developing an integrated system for workforce planning.

As discussed in Section 3.2.2, collating and assessing mobility trends across countries continues to be challenging. The data collected on this often does not reflect the complexity of migration and it does not effectively capture the different types of migration/mobility (e.g. temporary workers) as well as change in status of the professionals. Due to the limited data availability, the identification of common patterns and trends of mobility and the development of a comprehensive Europe-wide view of mobility trends for health professionals are difficult.

This lack of evidence has given rise to much misunderstanding of a complex phenomenon and has hindered the development of effective policy responses. Hence, it is vital to develop reliable and comparable data to identify the role played by the international mobility of health workers in shaping the health workforce and its impact on origin countries (OECD, 2007). There is an identified need in the European region to improve comparability of health workforce data as one prerequisite for monitoring the demand and supply of health labour across countries. This would also constitute a better base for monitoring migration flows of health workers (Wiskow, 2006).

5.2   Baseline Analysis

This section presents the analysis of most recent data on professional and geographical mobility of the health workforce. Professional and geographical inflows and outflows are analysed separately. Geographical mobility includes both within country mobility and cross-country mobility. The analysis in this section is based on the most recent data available. The data collated was analysed to assess professional and geographical mobility.

5.2.1   Professional Mobility

As identified in Table 19, professional mobility encompasses health workers entering the profession (from education and training) and leaving the profession (to retire or for other reasons). Assessing the number of professionals who enter and leave the health sector each year is a difficult exercise. Most countries can provide a reasonable degree of estimation of the numbers of health professionals moving in and out of the health sector. However, there are no standardised and sufficiently rigorous methods to estimate levels of turnover within the health professions, with the main methods of measurement often imperfect.

Inflows: Professionals Entering the Health Sector
Due to the availability of different methods to measure professional mobility and due to the limitation of any statistics obtained, data and statistics on professional mobility are difficult to compare across countries. Nonetheless, a summary of the data obtained can be found in Table 20 below.

In general, it appears that the number of health workers entering the profession has increased every year. In Austria, for instance, the total number of newly registered physicians has increased (from 1289 in 2000 to 1705 in 2008) as has the total number of newly registered dentists (from 135 in 2003 to 245 in 2008). However, the trends may vary across professions, even within the same country. In Belgium for instance, while both the number of newly registered nurses and dentists have increased, the total number of newly registered general practitioners has decreased (from 259 in 2005 to 218 in 2008).

Finally, there are also cases in which the **absolute number of health workers entering the profession has decreased over time**. A substantial decrease in the number of registrations among pharmacists has been experienced in Spain, where absolute numbers have decreased from 2069 in 2002 to 719 in 2007. Also in the United Kingdom, the number of medical doctors registering every year has been decreasing from approximately 18,000 in 2003 to approximately 12,000 in 2008 and the number of nurses and midwives registering every year has decreased from 31,000 in 2003 to 25,000 in 2008.

The principal finding on professionals entering the health sector is that there are **differences in the level of dependency on foreign trained workers**, with some countries (for example the United Kingdom for doctors and Austria for dentists) having

a high number of foreign trained health workers entering the workforce.[103] In these countries (Austria, Belgium, United Kingdom), the share of foreign nationals[104] among newly registered health workers has been increasing quite rapidly.

Table 20 – Overview of Numbers of Health Workers entering the Professions, in a Sample of Countries

Country	Professional Category	In-flow in the Profession (year)	Percentage Foreign
Austria	Physicians	1705 (2008)	13.5%
	Dentists	245 (2008)	40.8%
Belgium	General Practitioners	218 (2008)	7.8%
	Specialist Physicians	1071 (2008)	12.2%
	Nurses	4170 (2008)	13.5%
	Dentists	192 (2008)	19.3%
Finland	Physicians	500 (per year)	24.0%
	Nurses	2575 (per year)	2.9%
	Dentists	310 (per year)	43.0%
France	Physicians	7100 (2007)	6.3% (2006)
Germany	Physicians		5.2% (2008)
	Nurses and midwives		3.4% (2006)
	Dentists		2% (2008)
Hungary	Physicians	960 (2008)	4.70%
	Nurses	7855 (2008)	2.40%
Netherlands	Specialist Physicians	966 (per year)	
Norway	All	3558 (2005)	
Poland	Physicians	3430 (2009)	
	Dentists	1230 (2009)	
Spain	Dentists	1215 (2007)	9.71%
	Pharmacists	719 (2007)	3.75%
United Kingdom	Physicians	11794 (2008)	42.60%
	Nurses	25336 (2008)	12.90%

SOURCE: Prometheus, 2011

Outflows: Professionals Leaving the Health Sector

Data on the flow of health professionals out of the health workforce are also relevant for workforce planning purposes. The ageing of the workforce has in fact been identified as one of the key concerns for human resources for health. Austria, Belgium, Bulgaria, Estonia, France, Hungary, Italy, Latvia and Slovakia report an ageing healthcare workforce and have suggested it being one of the main drivers for more sophisticated workforce planning.

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[103] A more comprehensive explanation is provided in the section on geographic mobility.
[104] Health workers who are not citizens or permanent residents of the country in which they are registered

For the purpose of workforce planning, the most relevant question concerns the extent to which attrition actually influences the supply of health workforce. However, there is little data available that directly addresses attrition rates for the health professions (including retirement).[105] As a result, it is extremely difficult to assess the impact of attrition on the supply of health workforce, with any degree of certainty.

Evidence on the number of professionals leaving the health sector is available only in a very limited number of countries. In most cases, it is difficult to trace the source of this data and thus evaluating their validity. Moreover, this implies limited data comparability across countries. Table 21 provides a summary of data available in this area, giving a picture of the effects of attrition on the health workforce.

Overall, the most compelling trend that one can observe is that there appears to have been high turnover in the health professions in recent years, especially in Eastern Europe but even in England, where more health professionals are leaving the professions than are being replaced. However, given existing data limitations, it is clear that trying to gauge the precise numbers that leave the health professions each year is difficult.

Table 21 – Overview of numbers of health workers leaving the professions, in a sample of countries

Country	Key numbers
Belgium	- The number of general practitioners declined from 12,531 to 11,626 between 2002 and 2005
Croatia	- 4275 physicians (27.8% of physician workforce) not employed in medicine, including 1410 retired, 169 retired and 457 working at Institutes for Public Health
Czech Republic	- 3800 doctors left profession in year up to January 2011 due to poor work conditions and pay (Holt, 2011) - Since 1991, 8000 doctors have left the Czech Republic (Stafford, 2011)
Germany	- 3065 German physicians cancelled their registration with regional chambers of physicians in 2008 (taken as a proxy for emigration)
Ireland	- High turnover due to lack of opportunities in Irish system (WHO, 2009)
Italy	- Low attrition rates among medical students
Lithuania	- Minimal staff turnover and mobility (WHO, 2006)
Malta	- Approximately 70-80% of medical graduates emigrate, mainly to

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[105] Data on attrition related to geographic mobility are more easily determined and will be addressed separately Section 6.2.2.

Country	Key numbers
	the United Kingdom and the United States (WHO, 2006)
Poland	- High general turnover because of low salaries (WHO, 2005)
United Kingdom	In 2011, there were 1,350,377 staff in the NHS Workforce, a decrease of 19,799 (1.4%) since 2010, and an increase of 241,246 (21.8%) since 2001 (an average annual increase of 2.0%). There were 1,148,844 FTE staff in the NHS Workforce, a decrease of 14,907 (1.3%) since 2010, and an increase of 237,902 (26.1%) since 2001 (an average annual increase of 2.3%).[106]

SOURCE: Prometheus, 2011 (unless stated)

Retirement ages could represent a relative proxy to determine attrition due to retirement, if combined with information on the age profile of the health workforce. In order to estimate the share of health workers leaving the sector, health workforce planners should have at their disposal both data on the age profile of the workforce and data on the average effective retirement age.

Information on the actual retirement age of health staff is not collected systematically across countries. Thus, statutory retirement ages might have to be used as estimates. Iceland, where statutory and actual retirement age of medical workers is approximately 70 years old, is one of the few countries that reports this information.

The database of the International Council of Nurses Workforce Forum provides limited information on the statutory and actual retirement age of nurses. This is based on data collected from national statistical bodies and nursing registration bodies in 12 countries, including Denmark, Germany, Iceland, Ireland, Norway, Sweden and the United Kingdom. These data are reported in Table 22.

In the seven countries surveyed, the statutory retirement age for nurses was at least 65, with higher retirement ages in Germany and Iceland. Contractually, Germany had the highest retirement age (between 65 and 67), while nurses could retire in the United Kingdom and Ireland at 60. In practice, Iceland appeared to have the highest effective retirement age, varying between 60 and 70; while Norway had the lowest at 54. Based on data collected by a limited number of Member States[107], the average age of nurses in the EU is **43 years old**. This estimate is corroborated by other sources[108] which indicate that the average age of nurses employed today is between 41-45 years.

Table 22 – Different Retirement Ages for Nurses across Seven Countries, 2010

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[106] The Information Centre for health and social care. Available at: http://www.ic.nhs.uk/news-and-events/news/nhs-staff-numbers-show-biggest-overall-fall-in-ten-years--as-numbers-of-clinical-support-and-infrastructure-support-staff-decline-and-those-of-professionally-qualified-clinical-staff-increase-slightly

[107] 22 out of 34 countries collect data on the age profile of the health workforce (not nurses specifically). In many cases, these sources do not distinguish across different professions. Moreover, in most cases, data on the age profile of health workers is not publicly available as it is considered confidential information based on national social security data.

[108] http://www.euro.who.int/en/what-we-do/health-topics/Life-stages/healthy-ageing/facts-and-figures/health-and-social-care-systems

Country	Average age of employed nurses	Official retirement age for nurses, by contract	Official retirement age for nurses, by law	Official retirement age for nurses, in practice	Early retirement age
Denmark	43.8	65	65	61	55/60
Germany	41	65-67	65-67	n/a	63
Iceland	n/a	65	70	60-70	60
Ireland	43.3	60/65	65	60/65	50
Norway	n/a	65	65	54.37	62
Sweden	47	65	65	n/a	n/a
United Kingdom	42	60	65	55-65	50+

SOURCE: International Council of Nurses Workforce Forum, Nursing Workforce Profile: Database Summary, 7f. (http://www.icn.ch/images/stories/documents/pillars/sew/sew_workforce_profile_2010.pdf)

Due to the limited scope and coverage of data on actual retirement age of health staff, health workforce planners would have to rely on data on statutory and actual retirement ages of the entire working population. These data are reported in Table 23.

The data reveals notable variation in official retirement ages across countries. Significant differences also exist between statutory and actual retirement ages, with men and women in many countries retiring in practice at a much younger age. Evidence suggests that Northern and Western European countries appear in general to have the highest retirement ages, while Eastern and Southern European countries have the lower official retirement ages. However, in practice, the trends are far less obvious, with some Western European countries having smaller effective retirement ages and some Eastern and Southern European countries having higher ones. While there does appear to be some geographic variance in official retirement ages, it is less obvious in effective retirement ages, suggesting that there might be other mitigating factors.

Table 23 – Official Retirement Ages (2010) and Average Effective Retirement Ages (2004-09)

Country	Official retirement age for men, 2010 (except where stated)	Average effective retirement age for men, 2004-09 (except where stated)	Official retirement age for women, 2010 (except where stated)	Average effective retirement age for women, 2004-09 (except where stated)
Austria	65	58.9	60	57.5
Belgium	65	59.1	65	59.1
Bulgaria	63	55.4 (2006)	60	55.6 (2006)
Croatia	65	60.5 (2005)	60	57.4 (2005)

Country	Official retirement age for men, 2010 (except where stated)	Average effective retirement age for men, 2004-09 (except where stated)	Official retirement age for women, 2010 (except where stated)	Average effective retirement age for women, 2004-09 (except where stated)
Cyprus	65	67	65	60.5
Czech Republic	62	62	59	59
Denmark	65	64.4	65	61.9
Estonia	63	66.2	61	63.4
Finland	63 (up to 68)	61.8	63 (up to 68)	61.4
France	60	59.1	60	59.7
Germany	65	61.8	65	60.5
Greece	65	61.9	60	59.6
Hungary	62	60	62	58.9
Iceland	67	69.7	67	65.4
Ireland	66	63.3	66	63.7
Italy	65	61.1	60	58.7
Latvia	62	60 (2006)	62	56.4 (2006)
Lithuania	62.5	58.4 (2006)	60	57.3 (2006)
Luxembourg	65	57.3	65	58
Malta	61	60.5	60	59.5
Netherlands	65	62.1	65	62.6
Norway	67	64.5	67	64.5
Poland	65	61.7	60	58.5
Portugal	65	67	65	63.6
Romania	63	58.2 (2006)	58	56.3 (2006)
Slovakia	62	59.9	62	56.2
Slovenia	63	62	61	59.2
Spain	65	61.8	65	63.4
Sweden	65	66	65	63.5
Turkey	60	62.8	58	68.3
United Kingdom	65	64.3	60	62.1

SOURCES: OECD database, Eurostat database, Pensions Fund Online database (for Bulgaria, Croatia, Latvia, Lithuania, Romania), Cyprus Ministry of Finance, Maltese government

5.2.2 Geographical Mobility

Geographical mobility encompasses health workers migrating (a) within countries (across regions and between urban and rural areas) and (b) across European

countries. The latter category can be broken down in outflow and inflow mobility. Especially after the 2004 enlargement, there have been concerns on the possible impact of cross-border migration on national health systems. However, it appears that many countries are facing not only an outflow of health workers towards other European countries, but also misdistribution of health workers within their territory, due to within country mobility. In particular, it appears that, while cross-border migration is an issue primarily for EU-12 countries, within country mobility is an issue for large EU-12 countries.

Table 24 presents some of the issues related to within country and cross-country mobility in a number of European countries. The next sections instead explore within countries and across countries mobility separately.

Table 24 – Mobility Issues across a Selection of European countries

	Cross-border Mobility Issues	Internal Mobility Issues
Austria	Austria is not affected by significant losses of qualified health professionals to other countries and inflows and outflows are roughly balanced	
Belgium	The professional mobility of general practitioners is negligible and consequently has little impact on the available workforce. Inflows and outflows of nurses are more important – recent active recruitment of nurses from Romania and Lebanon aims at alleviating existing shortages.	There are significant regional variations in the density of health professionals (especially specialists). There are also significant shortages of nurses in urban areas.
Estonia	Cross-border health professional mobility has no major influence on the Estonian health workforce. Health professionals from foreign countries represent only 0.1–0.2% of the active health workforce in the country. Between 2004 and 2009, the emigration of Estonian health professionals was not as high as forecast in several studies.	A key problem is the lack of family doctors in small border municipalities and some small islands, where family physicians from neighbouring areas often substitute for their colleagues.
Finland	Cross-border mobility does not appear to be the main driver of health workforce shortages in Finland	There are significant problem related to misdistribution of health professionals. The rural areas of the northern and eastern parts of Finland suffer from the most severe lack of general practitioners
France	France has been recruiting foreign health professionals since the early 1990s to meet shortages not only of medical doctors but also of nurses and dentists.	The lack of staff depends on geographical areas and specialties and the current main workforce issues concern the misdistribution of the workforce within France.
Germany	The mobility profile of the country shows limited health professional migration to and from Germany. Health professionals of foreign nationality still represent a relatively small share (about 6%) of the total health workforce.	Germany faces significant disparities in the provision of health-care personnel. An oversupply in and around big cities such as Munich, Hamburg and Berlin contrasts with considerable shortages in sparsely populated areas in the less prosperous eastern part of the country.

	Cross-border Mobility Issues	Internal Mobility Issues
Hungary	Many health workforce issues, such as ageing, staff shortages and misdistribution, are aggravated by Hungarian health professionals leaving the country	There are significant geographical inequalities in the distribution of active health professionals – by region, by level and type of care, by profession and specialty and by living standards
Italy	Inflows of foreign health workers and nurses in particular, tend to exceed outflows. The chronic shortage of nurses has shifted attention to recruitment from abroad, although this is hampered by high levels of bureaucracy and the lack of stability and career advancement within the public sector.	Shortages, especially within the nursing profession, tend to be more severe in the Southern regions
Lithuania	Lithuania has relatively low mobility rates and, therefore, appears to be relatively immune from the effects of cross-border mobility. Also, examination of the current health workforce stock indicates that there is no need to import health professionals. However, the unfavourable economic situation prevailing at the time of writing may significantly accelerate outflow rates.	The geographical distribution of medical doctors has significant differences, for example – the number of medical doctors per 10 000 population ranged from a high of 80.9 in Kaunas city to a low of only 39.8 in Šiauliai city in 2008
Poland	While not presenting a direct threat, emigration of health professionals is likely to contribute to workforce shortages in the Polish health system.	
Romania	Romania appears to be a sources rather than a destination country for health professionals. 10% of Physicians in Romania migrate or intend to migrate. If cross-border mobility is not managed properly, the sustainability of the system will be at risk.	Most health professionals are concentrated in the big university cities. In 2005, the number of inhabitants per medical doctor was more than five times higher in rural areas than in urban areas.
Slovakia	The magnitude and impact of health professional mobility is an important issue for the health workforce and health systems in Slovakia.	
Slovenia	More than one-fifth of currently licensed and practising medical doctors and dentists are either foreign citizens or foreign graduates; therefore, cross-border mobility is an important contributor to the health workforce balance in Slovenia.	
Spain	Generally, international health professional migration has helped to relieve imbalances in supply, both geographical and for certain categories of health professionals.	Variation in the availability of professionals among autonomous communities is less marked than in other western European countries. Nevertheless, isolated and rural areas and the smaller islands find it difficult to recruit sufficient doctors and nurses.

	Cross-border Mobility Issues	Internal Mobility Issues
United Kingdom	Mobility and/or international recruitment have been an important workforce solution, in the sense that they have helped address some of the challenges related to possible health workforce shortages	Mobility within the United Kingdom has also gained significance following political devolution. On the one hand it appears that England (particularly the south-east) benefits most from internal migration/circulation and that Scotland, for instance, is a net exporter. On the other hand, a study of the employment location of nurses three years post-qualification indicated that London and south-east England tend to lose nurses to the north and north-west.

SOURCE: Prometheus, 2011 (unless stated)

Within Country Mobility

Stakeholders have argued that misdistribution across regions and between urban and rural areas is one of the main challenges faced by health workforce planners, especially in Western European countries.

For instance, Germany faces significant **disparities in the provision of health-care personnel between urban and rural areas.** An oversupply in and around big cities such as Munich, Hamburg and Berlin contrasts with considerable shortages in sparsely populated areas in the less prosperous eastern part of the country (Prometheus, 2011). Similarly, in Romania, most health professionals are concentrated in the big university cities. In 2005, the number of inhabitants per medical doctor was more than five times higher in rural areas than in urban areas.

Other countries instead, like Estonia and Lithuania, face **disparities in the distribution of health workers between different areas.** In Estonia, a key problem is the lack of family doctors in small border municipalities and some small islands, where family physicians from neighbouring areas often substitute for their colleagues. In Lithuania, the number of medical doctors per 10,000 population ranged from a high of 80.9 in Kaunas city to a low of only 39.8 in Šiauliai city in 2008 (Prometheus, 2011).

Unfortunately, one of the main data gaps with respect to health workforce mobility relates to within country mobility. Hence, it is difficult to include or take into consideration internal mobility when projecting health workforce supply across different regions.

Cross Country Mobility

The sections below present data on (a) outflow mobility and (b) inflow mobility respectively. As discussed in Section 3.2.2, aggregated figures on mobility flows across countries are available for physicians and nurses; however, they tend to be out-of-date. International institutions in fact are faced with comparability and accuracy issues when collecting and analysing data from national sources.

a) Outflow

Outflows reflect the numbers of health professionals leaving a country. Measurements of outflows are a key challenge for health workforce planners and policy-makers and in

most countries the numbers are unknown and subject to speculation (Prometheus, 2011).

Despite the lack of evidence, it is clear that the outflow of health professionals continues to concern health policy-makers. This is particularly the case for Eastern European countries where there are concerns over the systematic loss of their workforce, following the enlargement in 2004. Outflows from Estonia, Hungary, Poland, Romania, Slovakia and Slovenia in particular seem to have intensified at the time of the 2004 enlargement and then decreased but remained at a higher overall scale than before the EU enlargement (Prometheus, 2011).

Similarly, even large destination countries like Austria, Germany, Italy and the United Kingdom have experienced increases in the outflow of health staff (Prometheus, 2011). For instance, the number of Austrian doctors on German professional registries increased substantially from 260 to 1613 between 1988 and 2007, while the number of German doctors migrating to Switzerland, Austria, the United States and the United Kingdom almost tripled (from 1097 to 3065) in the past ten years. In the United Kingdom, where the rate of immigration of foreign doctors has traditionally been very high, the number of health professionals migrating to another country has also increased substantially (even though not enough to match inflows).

Overall, existing evidence suggests that both Eastern and Western European countries are experiencing an outflow of human resources for health after the enlargement. However, only in Western European countries this is counterbalanced by an inflow of health workers (Prometheus, 2011).

The numbers of doctors and nurses migrating to other countries are presented in Figure 24, with comparable international data on the numbers of migrating doctors and nurses and on the migration rate presented by the OECD in their 2007 *Migration Outlook*.[109] The countries with the highest migration rate for nurses were Ireland (24.9%), Malta (22%) and Cyprus (19.1%); while the countries with the highest rates of migration of doctors were Luxembourg (31.3%), Iceland (29.2%) and Malta (26.8%). Spain (1.1% and 1.9% for nurses and doctors respectively), France (1.9% and 2.0%) and Italy (2.2% and 1.8%) had the lowest proportion of doctors and nurses migrating to other countries. For eight out of the total seventeen countries surveyed, the most common destination was the United States (OECD, 2007).

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[109] As of November 2011, the OECD's 2007 was the most recent work in the public domain to have considered systematically and rigorously the rates of emigration and destinations of those emigrating among health professionals within Europe, using comparable means of measurement. However, the data in the 2007 report are out of date, with the figures referring to around 2000 (with labour force surveys covering 1998 to 2002).

Figure 24 – Expatriation Rates for Doctors and Nurses
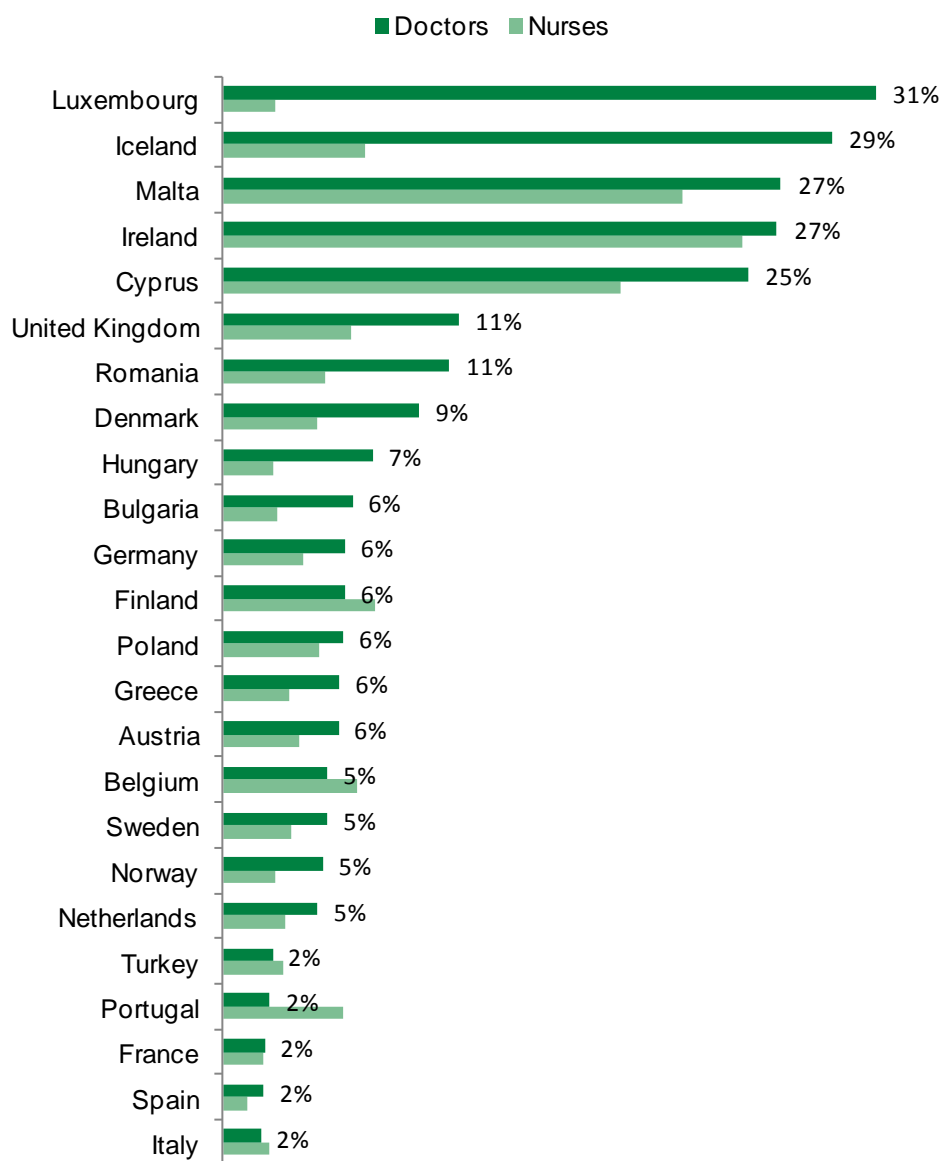
SOURCE: OECD Migration Outlook 2007, pp. 212-215

Results from the Prometheus project provide additional insights into recent emigration patterns among physicians within 14 European countries during the last decade (Prometheus, 2011). However, the level of comparability of Prometheus data is lower than the level of comparability of the OECD data. The Prometheus project has in fact collected data available at the national level, using different sources, while OECD has defined common key indicators before collecting data on those specific indicators. Even though the comparability of the Prometheus data is limited, they still provide interesting and more recent insight into mobility outflows.

In most cases, they corroborate data collected in previous year by the OECD. Iceland and Luxembourg continue to have the highest emigration rates among physicians (26% and 12.5% respectively. Similarly, Romania has maintained a high rate of expatriation

among doctors (11% approximately). A significant increase in the percentage of physicians that migrate has been experienced in Belgium, where it has reached almost 10%.

Table 25 – Percentage of Physicians Migrating to Another EU Country

		DESTINATION COUNTRY														% doctors that migrate
		AT	BE	CZ	DK	FI	FR	DE	IT	NL	NO	PT	ES	SE	UK	TOTAL	
ORIGIN COUNTRY	AT							1613							306	**1919**	5.06%
	BE						1576			1495						**3071**	9.95%
	BG															**500**	1.79%
	CY							52								**53**	2.54%
	CZ							700								**1809**	4.91%
	DK														164	**164**	0.89%
	EE															**709**	16.29%
	FI							106								**357**	2.52%
	FR		930					407	649			166			529	**2681**	1.27%
	DE	237					975		1276			85		86	3672	**6331**	2.19%
	EL							1708	851						1682	**4241**	6.75%
	HU															**2948**	9.95%
	IS										116			176		**292**	25.91%
	IT						854	755							1692	**3301**	1.63%
	LU							159								**159**	12.46%
	NL		1118					525							698	**2341**	5.16%
	NO				113			73								**186**	1.02%
	PL	245					134	1428		20				678	1937	**4442**	5.37%
	PT						164						61			**225**	0.58%
	RO						1565	927	555	10						**4990**	10.60%
	SK			1300												**1772**	10.94%
	ES		233				327	356				1870			1096	**3882**	2.37%
	SE				489	534										**1023**	3.10%
	TK				13	14	32	884		8					187	**1138**	1.04%

Source: Prometheus (2011)

Interesting trends can also be seen in terms of common destinations for emigrating health professionals. **Inside the EU, France, Germany and the United Kingdom have been the most popular destination countries for emigrant health professionals.** Outside the EU, the top four destinations are New Zealand, the United States, Australia and Canada (Prometheus, 2011 p. 26). Moreover, there appears to be clear patterns of emigration among countries: there seems to be high levels of exchange between Austria and Germany, and Western European health professionals typically immigrate to neighbouring countries or where their native language is spoken (many British health workers migrate to the United States, Australia, New Zealand and

Canada) (Prometheus, 2011). In addition, nationals from Eastern European countries tend to head towards the Western European countries.

The latter trend becomes more understandable when one considers the three principal reasons for emigration, as identified by the WHO Health Systems in Transition and Prometheus projects:

- Higher wages
- Better opportunities abroad and/or lack of opportunities at home
- Better working conditions

Given that emigrating health professionals seem to be attracted by the promise of higher wages, improved working conditions and better career opportunities, a possible implication is that East-to-West emigration has occurred because health professionals believe — rightly or wrongly — that they will benefit from being in Western Europe or the United States.

The United Kingdom, Germany and France appeared to be the preferred destinations for emigrating health professionals within the EU. Among extra-EU countries instead, the United States, Canada, Australia and Switzerland are frequent destinations, especially among physicians. Table 26 below outlines the most common destinations for emigrating health workers.

Table 26 – Preferred Destinations for Emigrating Health Professionals in the 2000s

Country	Preferred Destinations			
	for doctors	for nurses	for midwives	for dentists
Austria	Germany (2007), Australia and New Zealand (2009)	Germany (2008)	Italy (2005-08)	n/a
Belgium	France; United Kingdom; Netherlands (2006-08)	n/a	n/a	n/a
Finland	Sweden; United States (2000-07)	Sweden; Norway (2000-07)	n/a	n/a
France	United States; Canada; Switzerland (2009)	n/a	n/a	n/a
Germany	Switzerland; Austria; United States, United Kingdom (2008)	Switzerland; Austria; United Kingdom	n/a	n/a
Italy	United Kingdom; Germany; France			

	Preferred Destinations			
Country	for doctors	for nurses	for midwives	for dentists
Spain	Portugal; France; United Kingdom	Portugal (2007)	n/a	United Kingdom
UK	Australia; New Zealand; Canada (2007-09)	Australia; United States; New Zealand (2007-08)	see nurses—data paired with nurses)	n/a
Estonia	Finland; United Kingdom; Sweden (2004-09)	Finland; Norway; United Kingdom (2004-09)	n/a	Finland; United Kingdom; Sweden (2004-09)
Hungary	United Kingdom; Germany; Italy (2009)			
Poland	United Kingdom; Sweden; Germany (2004-07)	n/a	n/a	n/a
Romania	France; United Kingdom; Germany; Italy (2007)	n/a	n/a	n/a
Slovakia	Austria; Czech Republic; United Kingdom (2004-07)			
Turkey	United States; Germany; United Kingdom (2004-07)	n/a	n/a	n/a

Source: Prometheus, 2011

b) Inflow

Inflows reflect the number of health professionals entering the health sector from another country. The number of health workers entering the health sector from abroad might include foreign trained staff or foreign born staff. This section discusses separately trends in inflows of medical doctors and nurses.

Western European countries generally experience higher inflows of medical doctors than Eastern European countries (Prometheus, 2011). The largest inflows of physicians in 2008 were experienced by Spain, the United Kingdom and Germany, which registered respectively 8282, 5022 and 1583 foreign trained and foreign-born doctors. Lithuania instead reported the lowest number of foreign doctors registered (with only 11 new entrants in 2008). However, only a limited number of countries reported on the share of foreign trained or foreign born as a proportion of newly registered medical doctors. This includes the United Kingdom which has the highest percentage (42.6%), followed by Austria (13.5%), Hungary (4.7%) and Poland (2.7%) (Prometheus, 2011). In Slovenia in 2008, 22.5% (1,497) of all active medical doctors

had trained abroad. In France in 2010, 10,165 foreign national medical doctors (4.7% of medical workforce) were registered with the national doctors' association (Prometheus, 2011).

In terms of trends, the inflow of foreign medical doctors in Western European countries seems to have increased, if not peaked in the last decade and since the enlargement in particular. Spain has experienced a continuous and, since 2004, an increasingly rapid growth in inflows. Similarly, inflow of foreign doctors in the United Kingdom has increased significantly, peaking in 2003.

In terms of inflow of foreign nurses, Italy reported the highest number of foreign-trained nurses in 2008 (9168), followed by the United Kingdom (3724 foreign-trained nurses). By contrast, Finland reported a small number of foreign born nurses (97). The share of foreign nurses among all newly registered nurses was highest in Italy (28%), followed by the United Kingdom (14.7%) and Belgium (13.5%). In Hungary, only 2.4% of all newly registered nurses were foreign nationals[110] (Prometheus, 2011).

Information on trends in inflows of nurses is even more difficult to obtain. However, in the few Western European countries which were able to provide data, **the number of foreign nurses showed a clear upward trend**. In terms of numbers, there were 428 foreign nurses in Austria in 2003 and 773 in 2008; similarly in Belgium there were 205 foreign nurses in 2005 and 565 in 2008. Also in the United Kingdom yearly inflows increased substantially from 1988 to 2004 (from 2808 to 15 065 foreign-trained nurses and midwives) and decreased considerably thereafter (to 3724 in 2008) (Prometheus, 2011).

Overall, evidence suggests that countries in Western Europe have proven to be far more attractive destinations for emigrants than countries in Eastern Europe. While for example there are minimal inflows of health professionals to Lithuania and Estonia, foreign professionals have become increasingly prominent in western European countries such as the United Kingdom and France. The implication is that the reasons for people leaving may explain why particular countries are more popular than others. It appears that Western European countries are able to offer increased salaries, higher job satisfaction and better opportunities to develop one's career than Eastern European countries, with some countries in western Europe experiencing particularly strong inflows from eastern Europe (for example, Austria, Italy and Germany).

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[110] Nurses who are not a citizen or permanent residents of the country in which they are registered

Table 27 – Common Countries of Origin for Immigrant Health Professionals

Country	Most common countries of origin			
	for doctor	for nurse	for dentist	for midwife
Austria	Germany; Italy; Iran (2008)	Slovakia; Hungary; Poland (2008)	Germany; Romania; Hungary (2007)	Germany; Bulgaria; Iran; Poland (2008)
Belgium	Germany; Netherlands; France (2001-2008)	France; Netherlands; Germany (2004-2008)	n/a	n/a
Finland	Russia; Estonia; Sweden; Germany (2004-08)			
France	Romania; Belgium; Algeria (2010)	Belgium; Spain; United Kingdom (2006)	Belgium; Algeria; Germany (2007)	n/a
Germany	Austria; Greece; Russia (2008)	Croatia; Turkey; Poland (2008)	Greece; Netherlands; Romania (2007)	(Data paired with nurses)
Italy	Germany; Switzerland; Greece (2008)	Romania; Poland; Switzerland (2008)	n/a	n/a
Spain	93% non-EU countries (2008 stock); 75% Latin America (2009)	United Kingdom; Germany; Portugal. 30% from Latin America (2002-2007)	n/a	(Data paired with nurses)
UK	India; Pakistan; South Africa (2003-08)	India; Philippines; Australia	n/a	(Data paired with nurses)
Estonia	Finland; Latvia; Russia; Ukraine (2002-10)	One nurse from Latvia since (2002)	Finland; Russia	n/a
Hungary	Mostly native Hungarians living in Romania, Serbia, Slovakia, Ukraine and Austria			
Lithuania	46 health professionals between 2005-2008 from Armenia, Belarus, Russia, Ukraine, Uzbekistan, Norway and Poland			
Poland	Ukraine; Germany; Russia (2009)	n/a	Germany; Ukraine; Lithuania; Russia (2009)	n/a
Romania	No systematic data on immigration specific to health professionals— most common sources of origin for all immigrants in 2007 were Moldova, Italy and United States.			
Slovakia	Czech Republic; Ukraine; Iran (2007)	EEA countries and Switzerland (2007)	Germany; Ukraine; Russia (2007)	(Data paired with nurses)

Country	Most common countries of origin			
	for doctor	for nurse	for dentist	for midwife
Slovenia	Croatia; Serbia; Bosnia-Herzegovina (2007)	Serbia, Croatia, Bosnia-Herzegovina (2008)	Croatia; Serbia; Bosnia-Herzegovina (2007)	n/a
Turkey	Bulgaria; Iran; Azerbaijan; Uzbekistan (2005)	n/a	Bulgaria (2005)	n/a

SOURCE: World Health Organisation, 2011

The table below provides further information on the proportion of foreign doctors and nurses practicing in European countries. Comparable data on the numbers of migrating doctors and nurses and on the migration rate have only been presented by the OECD and the WHO in a 2010 policy brief. More up-to-date information is being collected but not yet available.

Table 28 – Percentage of Foreign Trained or Foreign Born Nurses or Doctors, OECD

Country	% foreign trained doctors (year in brackets)	% foreign trained nurses (year in brackets)	% foreign born doctors (year in brackets)	% foreign born nurses (year in brackets)
Poland	0.6 (2005)			
Austria	4.1 (2008)			
France	5.8 (2005)			1.6 (2005)
Denmark	6.1 (2008)	6.2 (2005)		
Netherlands	6.2 (2006)	1.4 (2005)		
Belgium	6.7 (2008)			1.5 (2008)
Finland	11.7 (2008)	0.5 (2008)		
Sweden	18.4 (2007)	2.6 (2007)		
United Kingdom	31.5 (2008)	8 (2001)		
Ireland	35.5 (2008)	47.1 (2008)		
Slovakia			0.8 (2004)	
Greece			2.5 (2001)	
Italy			3.7 (2008)	9.4 (2008)
Germany			5.2 (2008)	3.4 (2008)
Portugal			11.1 (2008)	3.6 (2008)
Norway			15.9 (2008)	

SOURCE: OECD/WHO, International Migration of Health Workers: Improving International Coordination to Address the Global Health Crisis (2010). Available at http://www.oecd.org/dataoecd/8/1/44783473.pdf

Overall, the evidence presented in this section suggests particularly strong flows between certain countries. For example, a high number of Irish doctors and nurses went to the UK, which issue 10 times more verifications of qualifications for Irish health professionals

than for any other EU country's health professionals (Prometheus, 2011: 304)[111]. The same is true for Austria and Germany, where there are high levels of exchange, especially among doctors. High levels of exchange also exist amongst the Scandinavian countries; and also on a wider level between Finland, the Baltic States (Lithuania, Estonia) and Russia.

Although by no means proven beyond reasonable doubt, a possible implication is that migrants tend to head towards culturally similar countries: for example, the United Kingdom and Ireland share a common language, culture and history; Germany and Austria are both German speaking countries; and the Scandinavian countries share similar languages (in the case of Finland, having Swedish as the second official language, explaining the high levels of exchange between Sweden and Finland).

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[111] Though the United Kingdom also benefits from an intense inflow of health professionals from Commonwealth countries such as India, Pakistan and South Africa)

5.3   Common Key Issues

This section summarises some of the common key issues related to mobility trends and mobility monitoring in the different European countries, as explored in the previous paragraphs.

1. Data Availability

Concerns about intensifying migration of health workers are aggravated by the limited availability of accurate and complete data to monitor professional and geographical mobility. Due to the limited availability of information, health workforce planners are not in the position to estimate current and forecast future health workforce inflows and outflows. Decision-makers do not know exactly who is entering and who is leaving their systems and therefore it is harder to assess the implications for the workforce and for health system performance (WHO, forthcoming).

Collating and assessing mobility trends across countries continues to be challenging. The data collected on this often does not reflect the complexity of migration and it does not effectively capture the different types of migration/mobility (e.g. temporary workers) as well as change in status of the professionals.

The most common obstacles to obtaining accurate and up to date data include:

- Due to the **lack of a proper and shared definition of health professional mobility**, three different indicators are used across countries: foreign trained, foreign born and foreign nationals. The unsystematic use of these indicators across Europe makes comparison very difficult.

- **Difficulty to capture certain emerging types of mobility**, like short term mobility, weekend work, dual practice and training periods abroad.

- **Difficulty to obtain time series data**, due to changes in professional definitions, new collection methods and new data sources that hinder the comparability of the data over time.

- **Lack of accurate outflow data**: intention-to-leave data are often used as a proxy of outflow mobility, but their validity is disputed. Outflow analysis generally needs to rely on information collected by the receiving country. Differences in definition and data collection methodologies across countries hamper the exchange of information.

2. Diversity in Magnitude and Direction of Mobility

The intensity and magnitude of health workforce mobility varies considerably across countries. According to the Prometheus (2011), some countries strongly rely on foreign medical doctors in order to meet human resources for health requirements. This group of countries includes Belgium, Portugal, Spain, Austria, Norway, Sweden, Ireland and the United Kingdom. Some of these countries, including Italy, the United Kingdom, Austria and Ireland, also rely on foreign nurses to meet demand.

In addition, it appears that flows are predominantly in one direction, namely from East to West. Thus, most destination countries are Western European countries, while outflows are concentrated in Eastern European countries. These differences may signal the persisting importance of geopolitical contexts and economic incentives (WHO, forthcoming). Lower income levels, working conditions and standards of living as well as unfinished health reforms in some EU-12 countries all add to the perception of less promising perspectives.

3. Impacts on the Health Systems

Evidence on the impacts of mobility on health system and the provision of health care is still limited. However, the limited number of studies available (WHO, forthcoming and Diallo, 2004) indicate that mobility contributes to shortages concerning size, skill-mix and geographical distribution of the health workforce. In particular, mobility might impact:

- **Service delivery:** especially if it involve large numbers and rare skills or if it occurs in areas characterised by shortages.

- **Training and financing:** significant costs are attached to the training of health professionals; thus, losing health professionals could have substantial financial consequences.

- **Salary levels:** evidence also suggests that mobility can affect and influence the salary levels both in the country of origin and in the receiving country, thus distorting labour market dynamics.

6.0   Health Workforce Planning (Deliverable 2)

This section provides an overview of health workforce planning methodologies, relevant for Deliverable 2 of the project. After a brief conceptual overview of the theoretical purpose, models and methods of workforce planning, we explore planning methodologies and approaches in different countries. We then outline some of the common key issues.

6.1   Conceptual Overview

Manpower planning (also known as *human resource planning*) consists of putting the right number of people, with the right skills at the right place, right time, doing the right things for which they are suited for the achievement of goals of the organization. This practice relies primarily on the following steps:

1. Analyse current human resources;

2. Making future human resources forecasts;

3. Developing related employment programmes; and

4. Design related training programmes.

Manpower planning is increasingly used and systematised both in the private and in the public sector, in order to meet customers and population needs. In this sense, planning for human resources for health does not differ, in principle, from planning for human resources in other sectors. However, **there are some fundamental and some procedural factors that set health workforce planning aside from any other form of manpower planning.**

According to Hall and Mejia (1978), workforce planning is '*the process of estimating the number of persons and the kind of knowledge, skills and attitudes they need to achieve predetermined health targets and ultimately health status objectives*'. Health workforce planning is a fundamental tool to ensure the availability of good quality healthcare. Thus, it can directly influence the health status of the population. Moreover, health workforce planning can contribute to ensuring the sustainability of health care systems across the world. Healthcare being one of main sources of GDP expenditures across countries, health workforce planning indirectly affects also the sustainability of national budgets. On this basis and as discussed in Section 2.2, health workforce planning differs fundamentally from any other form of manpower planning.

The table below outlines other procedural factors that distinguish health workforce planning from any other form of manpower planning, both in the private and public sector. These factors ultimately imply that each of the steps outlined above tends to be more cumbersome when it comes to planning for human resources for health.

Table 29 – Factors that Differentiate Health Workforce Planning from General Manpower Planning

Manpower Planning Step	Specificity of Health Workforce Planning
1. Analyse current human resources;	It is difficult to establish whether current human resources for health are sufficient and have the right skills in order to deliver high health standards. This is due to the fact that defining optimal health outcomes is not straightforward.
2. Making future human resources forecasts;	Forecasting future human resources is cumbersome because education and training of health professionals can take up to 10 years. Moreover, the health needs of the population change continuously, primarily due to demographic changes and technological development. Hence, defining future health needs against which human resources for health should be planned is difficult.
3. Developing related employment programmes; and	Human resources for health can be employed both in the public and private sector. Hence, employment programmes should be developed separately for the private and public sector, but at the same time be closely coordinated.
4. Design related training programmes.	The education and training of health professionals can take up to 10 years. For this reason, current training programmes should be designed taking into consideration future health needs and objectives.

The interpretation of what workforce planning is may vary across countries, depending on its purpose, the approach and the methods used. The sections below explore the alternative purposes of workforce planning and the methods and tools that can be used to achieve these purposes.

6.1.1 Purposes of Workforce Planning

The extent to which the workforce planning process is institutionalised varies substantially across countries. In an era in which health developments are quick and continuous, workforce development plans should be formulated in a collaborative manner. In other words, they should involve multiple stakeholders and they should rely on inputs from multiple sources, especially in terms of data and information required.

This is usually influenced by the perceived purpose of workforce planning in the country. If health workforce planning is only intended to monitor stocks and flows of human resources for health, the number of institutions involved and the comprehensiveness of the process might be more limited than in the case in which workforce planning is intended to influence decision making.[112]

On this basis, it is possible to identify three different possible purposes of workforce planning which map over clearly to the different roles that workforce planning can play. These different dimensions of workforce planning are not necessarily mutually exclusive and they often build on one another. These three dimensions are, in order of complexity:

a. **Monitoring:** data on the current and future health workforce are collected to monitor performance and forecast (e.g. expenditure).

b. **Analysis** to respond to challenges in terms of balancing the demand for and the supply of human resources for health, within the current environment.

c. **Strategic planning** over the longer term direction of the health system, including resource allocation, system characteristics and ensuring a sustainable health workforce.

The perceived purpose of health workforce planning is likely to be influenced by the broader approach to health care and by national specific drivers. In health systems that are based on self-employed healthcare providers (Bismarck system), like Germany, France and the US to mention only a few, the health workforce is less regulated than in other systems (Beveridge system, found in the UK and Scandinavian countries) and it is rather considered a free labour market. Within less regulated health labour markets, like the US one, the financing system for health should be able to support the market wage that brings in the right quantity of workers. Hence, health workforce planning is not necessary. Similarly, in countries where there is no perceived shortage or over-supply of health workers, no unequal distribution of personnel across the country and no substantial inflow or outflow of health workers, the apparent need for health workforce planning is diminished. Thus, national governments would not choose to devolve a substantial amount of resources to planning.

As a consequence of the fact that health workforce planning can have different perceived purposes, there is generally no agreement on what good looks like. The success of national health workforce planning systems should be measured against its initial perceived purpose. For instance, a country that perceives workforce planning as a way to monitor human resources for health can be considered successful if it has a complete and comparable dataset on human resources for health. If a country perceives workforce planning as a way to influence the longer term direction of the health systems, it should be able to rely on a comprehensive institutional structure and specific levers to determine workforce intakes. These levers can generally be **university quotas** or the **number of granted licenses**.

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[112] Hence, in the first case, data collection institutions will be the main actor in the process and the information they provide would not be extensively used. In the latter case instead, data collection institutions will collaborate closely with the Ministry of Health and the Ministry of Education.

The figure below summarises how national specific drivers, the healthcare system approach and the availability of levers influences the purpose and the shape of health workforce planning systems at the national level.

Figure 25 – Determinants of Health Workforce Planning Systems
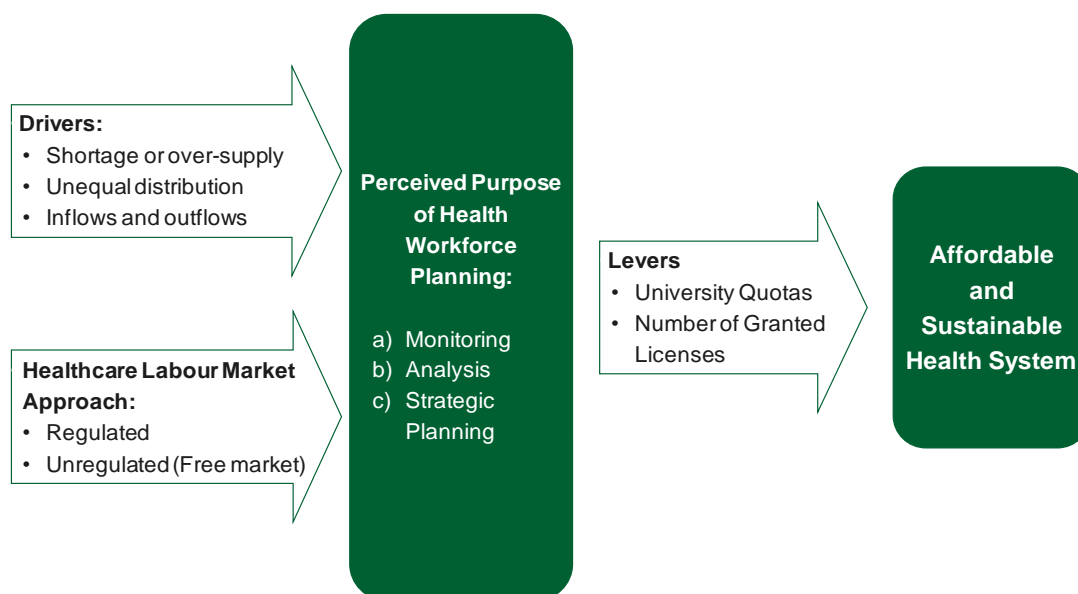
6.1.2 Workforce Planning Institutions

In an era of health development through partnerships and with renewed emphasis on primary health care, workforce development plans increasingly need to be formulated through a collaborative process. Ministries of health now need to plan health workforces for pluralist health systems and this cannot be done without including other sectors (WHO, 2010). Hence, the integrated approach to workforce planning should involve multiple components of planning and managing the health workforce. In 2010, the WHO and several partners have developed the HRH Action Framework (WHO, 2010) (see Figure 26).

Figure 26 – Human Resources for Health Action Framework
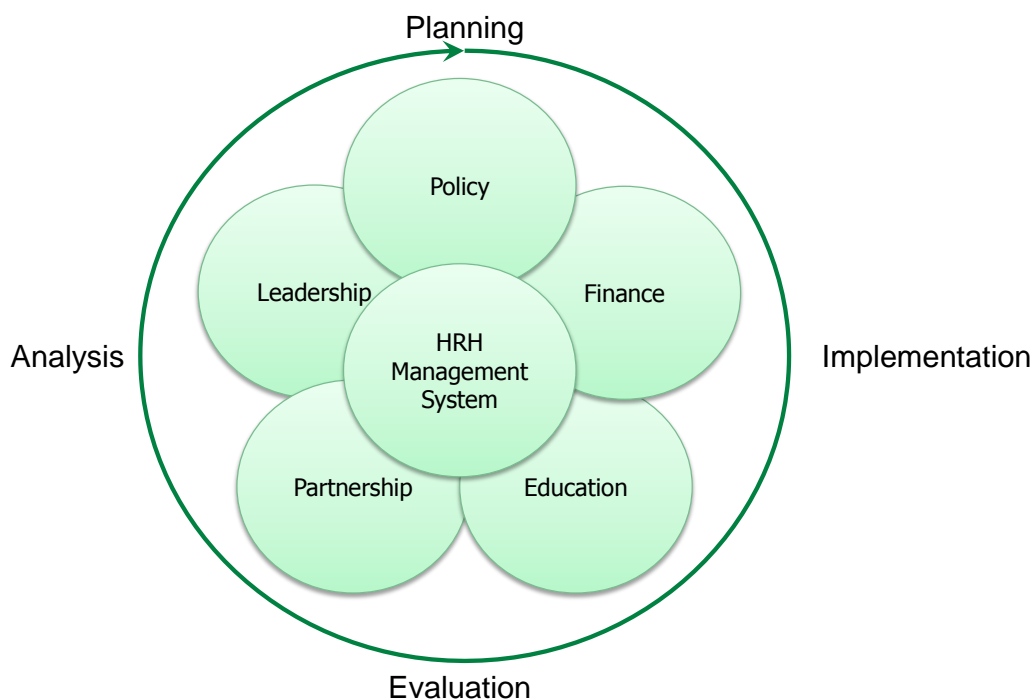
Graph reproduced from HRH Action Framework (2010)

Different partners and institutions should be responsible for different components of the Health Action Framework and thus contribute to integrated workforce planning. Looking at the different components, it is possible to provide an overview of which institutions and authorities should be involved in health workforce planning in each country.

Table 30 – Institutions Responsible for Different Components of the Health Action Framework

Component	Definition	Institution/Authority Responsible
HRH Management System	Integrated use of data, policy and practice to plan for necessary staff, recruit, hire, deploy and develop health workers	**Data collection institutions** (e.g. national registries, national statistical offices, etc.) Authority employing health personnel
Policy	Rules, regulations & legislation for conditions of employment, work standards and development of the health workforce	**Authority employing health personnel** (e.g. Ministry of Health, national health service, professional organisations, state owned companies, private companies financed by the state)
Finance	Obtaining, allocating and dispersing adequate funding for human resources	**Authority employing health personnel** (e.g. Ministry of Health, national health service, professional organisations, state owned companies, private companies financed by the state)
Education	Production and continuous	**Ministry of Education**

Component	Definition	Institution/Authority Responsible
	development of an appropriately skilled workforce	
Partnership	Formal and informal linkages aligning key stakeholders, e.g. service providers, sectors, donors, to maximize use of human resources	**Service providers** (e.g. hospitals, nursing and residential care facilities), professional associations, patients associations
Leadership	Capacity to provide direction, to align people, to mobilize resources and to reach goals	**Ministry of Health**

Source: Dal Poz et al, 2006

Ultimately, the number and type of authorities and bodies participating in the planning of human resources for health varies substantially across countries, depending on the institutional context and on the structure of the health system. The degree of involvement of different institutions will also vary, adding complexity to the picture.

6.1.3 Available Approaches to Health Workforce Modelling

Different approaches can be used to develop projections of demand and supply. These approaches focus on different aspects of human resources for health dynamics, including requirement projections, supply projections, workload and work activities, as well as staff development and movement (WHO, 2010). The type and level of complexity of the approaches used will vary depending on:

- **Perceived purpose of workforce planning** and in particular the extent to which workforce planning is to exercising influence over the longer term direction of the health care system.

- **Availability of technical, human and financial resources.**

- **Availability of accurate and comprehensive data,** both on the demand and the supply of human resources for health. Having the necessary data for the model(s) is a prerequisite (Nyoni et al, 2006).

As mentioned before, the purpose of workforce projections is to rationalise policy options based on a financially feasible picture of the future in which the expected supply of human resources for health matches requirements for staff within the overall health service plans. For this reason, health workforce planning needs to take into account multiple dimensions and multiple indicators of current and future workforce requirements and supply projections.

Thus, the workforce planning models to match supply and demand can be extremely complicated. Hornby (2007) has attempted to summarise the dimensions that health

workforce planning needs to take into account. This structure is presented in the figure below.

Figure 27 – Link between Demand and Supply Projections
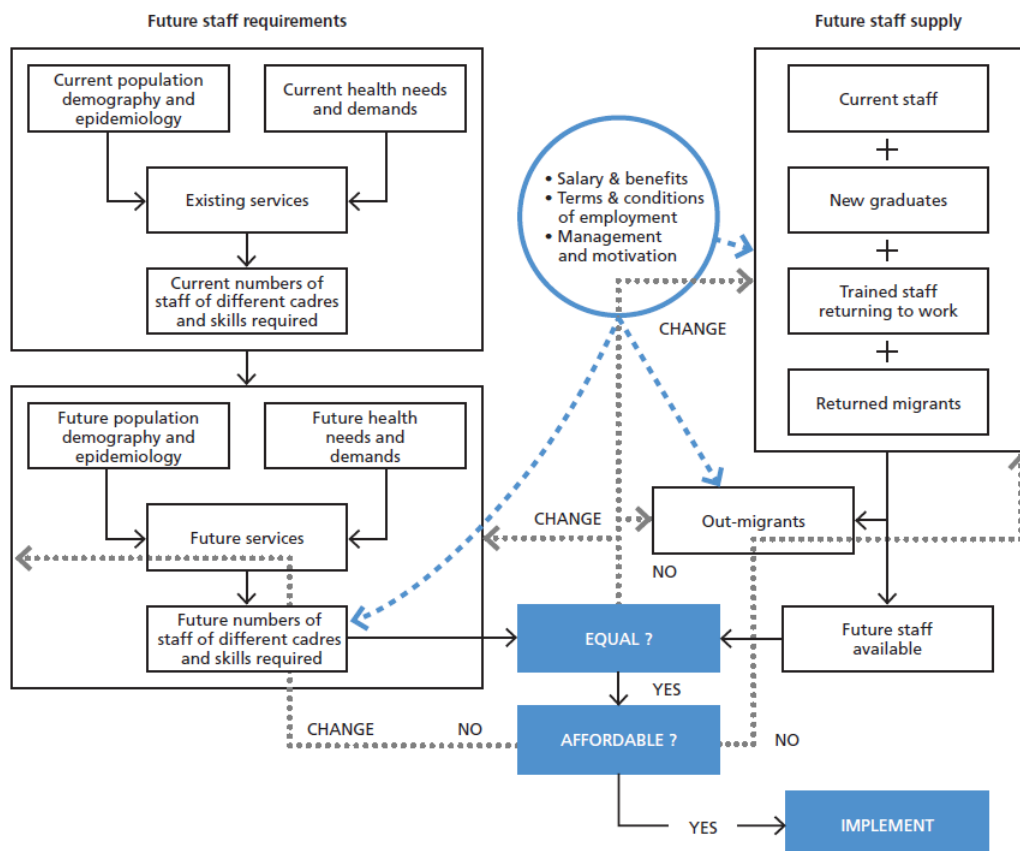
Source: Hornby 2007

Graph reproduced from Hornby, 2007

Figure 27 provides an outline for identifying the elements through which the supply-demand balance can be achieved. There are multiple dimensions to be taken into account when trying to meet health workforce needs. Firstly, workforce planning should **monitor and evaluate the current staff requirements**, in terms of current population demography and epidemiology and in terms of current health needs. This will allow them to assess current numbers of staff of different cadres and skills required. A similar analysis should be carried out for **future staff requirements**.

Secondly, workforce planning should **develop estimates of future staff supply**. These should be developed on the basis of information on current staff, new graduates, trained staff returning to work and returned migrants. It should also take into consideration inflows (including returning migrants) and outflows of migrants.

Finally, it should **assess whether the future numbers of staff of different cadres and skills required matches future staff available**. In addition, it should consider whether the projections are affordable and, only in that case, implement the relevant

policies. Hence, workforce planning models to match supply and demand can be extremely complicated; the figure below outlines how supply and demand analyses need to be matched in order to forecast possible future gaps.

Figure 28 – Overview of Health Workforce Analysis Approaches
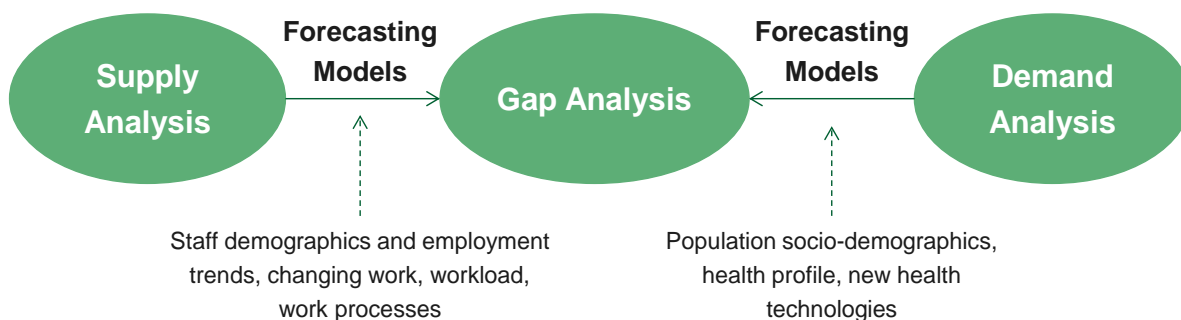
Source: Roberfroid et al, 2009

Demand-side projections are generally difficult to develop. International organisations and experts have identified some approaches that are commonly used to project future health workforce requirements. These methods are presented in Table 31 below.

Supply-side projections are conceptually easier to address than demand side projections. However, they require accurate and comprehensive information and careful accounting of both stocks and flows of human resources for health. In particular, they should consider:

a. Number of new entrants into the health workforce;

b. Capacity to produce more, fewer or different types of health workers and recruit them; and

c. Loss rates through retirement or pre-retirement leaving (e.g. emigration, death).

Supply side models should also encompass the way the health workforce is mobilised, organised and motivated through human resource policies that influence the decisions of health workers. Moreover, they should take into account and monitor changing organisations patterns including, for instance:

- the shift from acute care to community care;

- the impact of an ageing population (including the ageing of the health workforce);

- societal changes (e.g. feminisation of the labour market);

- the impact of EU legislation (e.g. Working Time Directive);

- the role of new technologies; and

- the interface between health care and long term care.

Data availability is crucial in order to be able to include these aspects in the planning of human resources for health. For instance, most countries do not hold full-time-equivalent (or whole-time-equivalent) data that are critical to be able to understand societal impacts (e.g. feminisation of the labour market) and other aspects. Similarly, data on the outflow of human resources for health due to retirement are limited; thus, the impact of an ageing population is hard to assess.

The table below outlines the key aspects of the three main approaches to health workforce planning, which include the supply-projection approach, the demand-side approach and needs-based approach. It also presents the main assumptions, the limitations and the advantages of each approach.

Table 31 – Approaches to Estimate Requirements for Human Resources for Health

Model or Tools	Description	Assumptions	Advantages	Limitations
Supply projection approach	Usually looks at physician-per-population ratios and which human resources inflows would be necessary to maintain current standards.	Future requirements for physicians will need to match volume of services currently provide on a per capita basis. Additionally: 1) Current supply is adequate 2) Age and sex-specific productivity of providers remain constant in future 3) Size and demographic profile of providers changes over time in ways projected by currently observed trends	Relatively easy to calculate and can usually draw on a wealth of supply data.	Does not look at the actual health needs of the population.
Demand-based approach	Examines quantity of health care services demanded by the population in the future, based on number and type of projected services and on physician-per-population ratios.	Usually assumes that physicians are needed for all healthcare needs, but this can be modified. Additionally: 1) Current demand for healthcare is appropriate and appropriately met by current supply. 2) Age and sex-specific resource requirements remain constant in the future 3) Size and demographic profile of population changes over time in ways projected by currently observed trends	Gives some indication of health demand of the population and not difficult to calculate if reliable proxies capturing demand are available.	Makes strong assumptions on the future trend of current variables, which may not accurately reflect the health needs of the population in the future.
Needs-based approach	Usually taking epidemiological factors into account, this involves defining and projecting health care deficits and looking at the number of workers necessary to provide an optimum standard. This is a more advanced version of a demand-based approach, taking more factors into account.	1) All healthcare needs can and should be met 2) Cost-effective methods of addressing needs can be identified and implemented 3) Health care resources are used in accordance with relative levels of needs.	Defines and projects possible existing health care deficits, in order to give an accurate depiction of future health needs, based on as many factors as possible.	Very difficult to calculate, due to lacking data on epidemiological factors and other estimates of future needs.

Source: Roberfroid, 2009

6.2   Baseline Analysis

The remainder of this section provides an overview of current health workforce planning methodologies across the 34 countries covered by the study. It starts off by presenting international initiatives that have been put in place to support national authorities in the identification and development of planning models and tools.

6.2.1   Existing International Collaboration and Initiatives

As the level of success and maturity of health workforce planning models differs across European countries, the exchange of good practices can be extremely beneficial. International institutions and some national authorities have recognised this[113] and have invested resources to identify and exchange good practices on the analysis of demand and supply of health workforce.

The WHO Human Resources for Health Tools and Guidelines

At the international level, **the WHO has identified, collected and made available methods and tools to estimate the supply of and demand for human resources for health.** Tools and models for human resources for health can be downloaded on the WHO website[114], together with user guidelines, software manuals and case studies, which describe how the tool is currently implemented in other countries. At the same time, a WHO report ('Models and Tools for health workforce planning and projections', WHO 2010) outlines some of the advantages, disadvantages and limitations of each model, and provide a brief overview of how they have been implemented in other countries. The models researched and presented by the WHO are described in Table 32.

The purpose of providing this information is to increase awareness about existing good practices, to stimulate the exchange and to support national development. However, interviews with national level stakeholders suggest that the visibility and accessibility of WHO publications and web portals is still limited, as not many health workforce planners are aware of them.[115]

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[113] Interviews with stakeholders in Finland, Spain, Lithuania, Hungary, Slovenia, the UK
[114] http://www.who.int/hrh/tools/planning/en/index.html
[115] Information collected during interviews with national level experts and stakeholders as part of the case studies and the country profiles.

Table 32 – Methods to Estimate Requirements for Human Resources for Health (WHO, 2010)

Model or Tools	Description	Assumptions	Advantages	Limitations
Workforce-to-population	Explores likely changes in population needs for health services, based on changes in patterns of disease, disabilities, injuries and the number and kind of services required	Often based on current best region ratio or a reference country, with a similar but presumably more developed health sector	Quick, easy to apply and to understand	Provides no insight into personnel utilization Does not allow to explore interactions between numbers, mix, distribution, productivity and outcome Base year mal-distribution will likely continue in target year
Health needs method	Estimates future requirements based on estimated health deficits of the population Projects age- and gender-specific 'service needs' based on service norms and morbidity trends Converts projected service needs to persons requirements using productivity norms and professional judgment	All health care needs can and should be met Cost-effective methods to address the needs can be identified and implemented Resources are used in accordance with needs	Has the potential of addressing the health needs of the population using a mix of HRH Is independent of the current health service utilization Is logical, consistent with professional ethics, easy to understand Is useful for some programmes such as prenatal and child care Is useful for advocacy	Ignores the question of efficiency in allocation of resources among other sectors Requires extensive data If technology changes, it requires norms update Is likely to project unattainable service and staff targets
Service demand method	It draws on observed health services utilisation rates for different population needs. It applies these rates to the future population profile to determine the scope and nature of expected demands for services	Current level, mix, distribution of health services are appropriate Age- and sex-specific requirements remain constant in the future Size and demographic profile of the population changes in ways	Economically feasible targets due to no or little change in population-specific utilization rates (assumed)	Requires extensive data Overlooks the consequences of 'errors' arising from the assumptions proving to be invalid Produces a 'status quo' projection, since future

Model or Tools	Description	Assumptions	Advantages	Limitations
	and converts this into required health personnel	predictable by observed trends in age- and sex-specific rates of mortality, fertility and migration		population segments are assumed to have similar utilization rates as base year segments
Service targets method	Sets targets for the production and delivery of specific outcome oriented health services Converts these targets into HRH requirements by means of staffing and productivity standards	It assumes that the standards of each service covered are practicable and can be achieved within the timescale of the projection	Relatively easy and understandable Can assess interactions between variables	Potentially unrealistic assumptions

The Case of Lithuania

At the national level, planning authorities have also recognised the possibility of learning from more advanced countries and have pursued the exchange of good practices. As a consequence, they invested time and resources to export models and tools developed in other countries and to adapt them to their own national context. This is clearly the case in Lithuania, where the University of Health Sciences decided to import the Australian supply model[116] and the Dutch demand model (developed by NIVEL) for health workforce planning.

While not unique, this particular exchange of good practices has proved to be successful: the University of Health Sciences still applies the models developed by and exported from Australia and the Netherlands. This exchange relied on personal connection and matured during international conferences, which represent an appropriate platform to increase awareness about existing good practices and meet the national experts in charge of their development[117]. Once the connection was made, Lithuanian scientific experts underwent a period of training in Australia and the Netherlands, where the models had been developed. They were then able to replicate the model and adapt it to the Lithuanian context. Contrary to much expectation, Lithuanian scientific experts argued that it was not difficult to adapt the foreign models to their national context. The main challenges were related to limited data availability in Lithuania, which did not allow them to fully exploit the model, rather than to different national institutional contexts or lack of resources. On this basis, the Lithuanian data collection process has now been adapted, in order to provide as many relevant information as possible.

6.2.2 Health Workforce Planning at the National Level

Drivers and purpose of workforce planning

The drivers behind and the perceived purpose of workforce planning influence the extent to which workforce planning processes are integrated in European countries. Both drivers and purpose vary across Europe and are largely dependent on the institutions involved in workforce monitoring, forecasting and planning.

Overall, a number of closely interlinked **drivers** can be identified driving the development of health workforce planning.

- One overarching driver is **ensuring adequate supply.** The prevention of shortages was named as a driving force by competent authorities in Croatia, Germany, Spain, Slovenia and Sweden. Along similar lines, institutions involved in the planning process in France and Germany identified overcoming geographical misdistribution as the reason to institutionalise and integrate workforce planning.

- Closely linked to this is the need to **monitor and forecast,** which was identified in Austria, the Czech Republic, Denmark, Estonia, Finland, Hungary, Iceland, Italy, Lithuania, Luxembourg, Romania and the UK as an important driver.

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[116] The Australian National Health Workforce Planning Tool (NHWT) enables planning of the entire health workforce at state/local level in a manner consistent with national planning strategy. Data inputs that can be varied according to state/local health workforce planners' needs include average hours worked per week by age and gender, annual workforce turnover, migration (internal and external), re-entries, losses and training places. It is a supply projection model that allows health workforce planners to project the number of workers needed to attain certain supply levels of health professionals. (http://www.ahwo.gov.au/researchtool.asp)
[117] Interview with national stakeholders in Lithuania, Belgium, Finland

- The **containment of health expenditures** (including the reduction of supplier-induced demand) and the **efficient allocation of health resources** are recognised as driving planning in countries including Belgium, Bulgaria, the Czech Republic, Ireland and Slovakia. The prevention of supplier-induced demand (see Section 4.1 for a definition) is one of the key motivating factors of Belgian health workforce planning, for example, where stakeholders stated that complete reimbursement of all prescribed treatments presents an incentive to physicians to prescribe excessively. Evidence of supplier-induced demand has been found, for example, in the Netherlands, where an increase in reimbursement for services provided to socially-insured patients led to an increase in services provided by physicians (van Dijk et al 2012).

- Finally, **quality assurance** and **availability** considerations have impacted developments in, amongst others, Austria, Belgium, France, Hungary, Iceland and Poland. In these countries, the main driver of health workforce planning appear to have been ensuring that health needs are met and patients can access the best quality treatment.

The three overarching **dimensions** of workforce planning introduced in the conceptual overview (Section 6.1.1) provide an ideal framework for analysing purposes across Europe. The following table illustrates how European countries can loosely be grouped according to their focus on: (a) monitoring and forecasting (*monitoring)*, (b) balancing the demand for and the supply of human resources for health within the current environment (*analysis*), or (c) anticipating future needs, increasing system responsiveness and ensuring sustainable health workforce (*strategic planning*) constitutes the main purpose of workforce planning.[118]

Table 33 – Primary Purpose of Workforce Planning

Monitoring	Bulgaria, Cyprus, Luxembourg, Malta, Slovenia, Romania
Analysis	Austria, Belgium, Croatia, Czech Republic, Denmark, Estonia, France, Germany, Hungary, Iceland, Italy, Latvia, Liechtenstein, Lithuania, Netherlands, Slovakia, Spain, Sweden
Strategic planning	Finland, Ireland, Norway, UK

As highlighted in the table above, **monitoring is the main purpose of workforce planning in Bulgaria, Cyprus, Luxembourg, Malta, Slovenia and Romania**.

In the large majority of European countries, analysis to respond to current challenges represents the main purpose. There is of course considerable variation between – and, in certain, instances within – countries in how this second purpose is realised, both with regards to output, the extent of demand and supply considerations (see Section 6.2.2) and the institutions involved (see Table 34).

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[118] Whilst workforce planning in a given country may cover more than one of these purposes (e.g. monitoring and informing policy decisions), this grouping focuses on the *main* purpose of workforce planning in each country.

In very few European countries can workforce planning be said to be institutionalised across the health system and effectively used to influence decision making and to allocate resources in the longer term. One example is intelligence reporting in the UK, which includes analysis of the system, risks and opportunities within specific healthcare professions, skills mix and care pathway considerations.

Main Workforce Planning Institutions

With the exception of the Centre for Workforce Intelligence in the UK, there are few institutions in Europe dealing exclusively with health workforce planning. In most countries, the national Ministry of Health (or specific agencies therein) is responsible for health workforce planning. However, a range of institutions are usually involved in the planning process, including:

- Other public institutions including Education and Finance Ministries, and National Health Services;

- Professional associations;

- Health/Social Security Insurers;

- Independent planning institutions such as Gesundheit Österreich GmbH in Austria, a national research and planning institute for health care and a competence and funding centre of health promotion.

The table below provides an overview of the main institutions involved in health workforce planning and their mandates as well as the structure of workforce planning across Europe. The mandates of workforce planning institutions can be either advisory or prescriptive; in the first case, the workforce planning institution issues recommendation to national governments (usually the Ministry of Education or the Ministry of Health) on students intakes; in the second case, the results of health workforce planning have to be taken into consideration when defining students intakes.

Table 34 – Workforce Planning Structure, Institutions and Mandate

Member State	Structure		Main Workforce Planning Institution						Mandate	
	National	Regional	Ministry of Health	Other Public Institutions	Professional Associations	Health/Social Security Insurers	National Health Service	Independent Planning Institutions	Advisory	Prescriptive
Austria	x	x			x	x		x	x	
Belgium	x	x	x						x	
Bulgaria	x	x	x							x
Croatia	x	x	x						x	
Cyprus	-	-								
Czech Republic	x		x							x
Denmark	x		x						x	
Estonia	x		x						x	
Finland	x	x	x	x[119]						x
France	x		x						x	
Germany		x			x					x
Greece*										
Hungary	x		x						x	
Iceland	x		x						x	
Italy	x	x	x						x	
Latvia	x		x							x
Liechtenstein		x			x	x				x
Lithuania	x			x[120]					x	
Luxembourg	-									
Malta	x		x						x	
Macedonia (FYROM)*										
Montenegro*										
Netherlands	x			x	x	x			x	
Norway	x	x	x						x	
Poland*										
Portugal*										
Republic of Ireland	x						x			X
Romania		x	x							x
Slovakia	x		x						x	
Slovenia	x	X	x						x	
Spain	x	X	x	x[121]					x	
Sweden	x	X	x						x	
Turkey*										
United Kingdom	x						x	x	x	

* *Information not available*

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[119] Ministry of Finance, Ministry of Employment and Economy, Ministry of Education and Culture, Government Institute for Economic Research, National Board of Education

[120] University of Health Sciences

[121] Ministry of Education, Ministry of Economy, Autonomous Regions, National Institute of Health Management (Ceuta and Melilla)

Structure of Workforce Planning

With the exception of three countries – Germany, Liechtenstein and Romania – workforce planning across Europe has a national component; in 13 countries planning is predominantly carried out at the national level and in a further 10 countries, institutions are involved at both the national and regional level. Regional involvement is generally a reflection of decentralised healthcare systems and ranges from operational planning (by Regional Health Services in Spain for example) to input into national planning (as is the case in Norway).

The structure of workforce planning in Italy and Germany illustrates the differences in the ways in which regional and national involvement varies across Europe:

- In **Italy**, planning is generally carried out at regional level. Regional health services – using different, regionally determined models and methods – collect, analyse, compare data and make recommendations to the Ministry of Health. The Ministry of Health brings together, analyses, compares and validates the regional data and forecasts. It in turn makes recommendations to the regions on revisions of their forecasting estimations as well as to the Ministry of Education with regard to the number of entrants to degree courses.

- In **Germany**, in contrast, there is no federal involvement in workforce planning and university places are financed and determined by the regions (Länder) according to their budget. For statutory health insurance physicians[122], requirement planning or 'Bedarfsplanung'[123] which fixes the number of statutory health insurance physicians allowed to practice in the 397 planning districts, is carried by the regional associations of statutory health insurance physicians and the regional associations of the statutory health insurance providers.

Systems for workforce planning

The way the aforementioned institutions involved in workforce planning interact, both at regional and national level, varies across Europe. Nevertheless, some general trends in the systems for workforce planning can be identified:

- In many countries, the Ministry of Health, having collected and analysed the data, makes **recommendations to the Ministry of Education regarding university quotas** for medical schools (including Bulgaria, Estonia, France, Hungary, Italy and Norway);

- Focusing almost exclusively on current supply, doctors associations in Austria, Germany and Liechtenstein use data to set **quotas on the number of statutory health insurance physicians** allowed to practice in a given region;

- In some countries, the **Ministry of Health**, on the basis of data monitoring and forecasting, provides input into **national health plans and/or maps** (as is the case in Bulgaria, Croatia, Finland and France).

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[122] Statutory health insurance physicians (doctors and psychotherapists) make up around 40% of all physicians

[123] The Federal Joint Committee 'Gemeinsamer Ausschuss' (made up of representatives from the national association of statutory health insurance physicians, the German hospital federation (DKG), the national association of dentists with contracts with the social insurance scheme (KZBV), and the GKV-Spitzenverband) sets the guidelines for this requirement planning.

Planning approaches

As mentioned in Section 6.1.3 (Table 31), three approaches to workforce planning can be identified across countries, based on classifications presented by Roberfroid (2009). Due to the varied nature of how different countries oversee their healthcare systems, the classification of countries' workforce planning approaches is not always straightforward. In particular, it is often not clear to what extent countries engage in model based workforce planning, namely whether national health workforce planning institutions use quantitative models or tools in order to develop supply-side or demand-side projections and carry out a gap analysis (see Figure 28). More specifically, a modelling system should be based on a number of indicators and should include projection into the future. This means that, for example, whilst developing Regional Health Maps outlining how doctors and specialists are distributed according to population needs, like in Bulgaria, could be considered as a form of planning, it is not based on a systematic model. Thus, Bulgaria is not classified as implementing model-based health workforce planning.

Table 35 – Model-based Workforce Planning across European Countries

Countries that engage in model-based workforce planning			
Country	**Supply-projection**	**Demand-based**	**Needs-based**
BE	x	x	
DE[124]	x	x	
DK	x		
EE	x		
ES	x		
FI	x		x
IE	x	x	
LT	x		x
MT	x		
NL	x		x
NO	x		x
SE	x		
UK	x		x
Countries that do not engage in model-based workforce planning			
AT	No specific model used. Planning based on studies on health workforce.		
BG	Bulgaria, in theory, uses a system of Regional Health Maps, whereby health establishments, doctors and specialists are planned and distributed according to population needs. However, on a practical level, this system is not functioning, which means that there is currently no workforce planning in Bulgaria.		
CY	Cyprus does not engage in any central health workforce planning.		
CZ	The Czech Republic does not use a specific workforce planning model. Several operational programmes, which largely entail subsidising the training of certain professions, are in place.		
EL	No healthcare workforce planning exists in Greece. Whilst a health reform plan formulated between 2000 and 2002 intended to introduce a more rigorous planning structure into the Greek health system, the changes were never implemented. Another attempt at using health workforce planning to allocate resources in the short term has been made as part of		

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[124] The exception here is Germany, which does not project into the future, but was classified as using a workforce planning model because the present modelling system is rigorous and based on a number of factors.

	the Troika's (IMF, ECB and the EC) efforts to reform Greece. This is on-going and currently being monitored.[125]
FR	France does not use a specific workforce planning model. It is sometimes attempted to correct geographical disparities through adjust the numerus clausus in certain areas.
FYROM	FYROM does not engage in any central health workforce planning.
HR	Croatia does not engage in any central health workforce planning. Planning for individual hospitals is done on an informal basis.
HU	Hungary does not currently have a workforce planning model, but is developing a Human Resources for Health Monitoring System, which will project the future health workforce according to supply and demand. The current system mainly consists of uncoordinated planning on a local level, with incentives usually encompassing individual career plans.
IS	Iceland does not use a systematic workforce planning model. Whilst it reacts to individual reports of workforce shortages by providing financial means and attempts to address geographical dispersion of the health workforce through various methods, it does not use a planning model as such.
IT	Italy has no national health workforce planning. Many individual regions do short- and medium-term supply-side forecasting of healthcare professionals. The central government has no control over which indicators and models are used by individual regions.
LI	Liechtenstein does not engage in any central health workforce planning.
LU	Luxembourg does not engage in any central health workforce planning.
LV	There is no national-level institution involved in health workforce planning. Whilst the Ministry of Health takes a number of factors into account when considering its healthcare human resources budget, such as medical practitioners, demographics and patient flows, it does not systematically feed these into a model. More detailed planning is conducted at a local level, e.g. by hospitals. Deep government budget cuts from 2009 onwards have meant that the 'Human Resources Development in Health Care' plan previously approved still needs to be updated according to the current budgetary situation.
ME	Montenegro does not engage in any central health workforce planning.
PL	Poland does not engage in any central health workforce planning
PT	Portugal does not use a central health workforce planning model. Some geographical disparities are addressed through measures such as a numerus clausus.
RO	Romania does not engage in any central health workforce planning.
SI	Slovenia does not use a central health workforce planning model. It looks at a limited number of supply-side elements when deciding on target levels of number of health workforce staff. It is envisaged that a more systematic approach is taken in future, incorporating more demand aspects.
SK	Slovakia does not engage in any central health workforce planning.
TR	Turkey does not engage in any central health workforce planning.

A brief description of countries' models is provided here:

- **Belgium** uses a stock and flow model, which incorporates both supply-projection and demand-based elements. Projections made in January 2012 are up until 2018, with physicians, dentists and physiotherapists included.

- In **Germany**, planning is only done on a state (Bundesland) level, statutory health insurance physician associations fix the number of physicians necessary and allowed to practice in a total of 397 planning districts, for the present. This is based on a simple model with supply

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[125] http://ec.europa.eu/economy_finance/publications/occasional_paper/2012/pdf/ocp94_en.pdf

and demand-based elements, which takes a limited amount of factors into account, and does not project actual demand in the future.

- In **Denmark**, data is gathered from registration of doctors' authorisations and matched via social security numbers with employment data. On that basis, along with other data sources, a report is produced which uses a supply-projection model to forecast health personnel (doctors, dentists, clinical hygienists, dental technicians) supply over the next five years. This feeds into the decisions on student intake and the distribution of specialisation positions. There is a simple 'technical projection of demand', which consists of current demand (i.e. the assumption that current supply suffices to match demand) multiplied by a number of randomly selected annual growth rates. No factors affecting demand are estimated (i.e. no need based estimates), so this is not a demand-side model.

- In **Estonia**, a stock and flow supply-side model is used, with a projection timeframe of between five and ten years, for physicians, dentists, nurses and midwives.

- **Spain** engages in supply-side health workforce planning for physicians and nurses on a national and regional level. The Government and associated planning institutions publish regular reports analysing the current situation and forecasting up until 2025 (starting in 2012).

- **Finland** uses a comprehensive analysis of long-term labour demand in all industries, including all social and health care professions. This is combined with projections of the needs of the population, to form an integrated supply and needs-based system, projecting developments for all professional and occupational groups in social and health care over a period from 2008-2025.

- **Ireland** is currently centralising its national-level workforce planning. Its current quantitative model considers demand and supply, and integrates this with services and financial planning. Forecasts are made twenty years in advance for physicians.

- **Lithuania**'s Ministry of Health, together with the Lithuanian University of Health Science, conduct supply- and needs-based health workforce planning for physicians, nurses, pharmacists and dentists, up until 2015 (from 2012). The supply model is an adjusted John Dewdney model, the needs-based model an adjusted Nivel Institute (Dutch) model. Gap analysis is performed.

- **Malta** engages in supply-side workforce planning, primarily for physicians. Projections are generally ten years into the future, for physicians and, to a lesser extent, nurses.

- The Nivel model forecasts the demand for physicians in the **Netherlands** for 9 different scenarios over the next 12 to 18 years and consequently estimates the needed yearly inflow in each of the 35 medical speciality training programs to match the calculated demand.

- **Norway** uses a model framework called HELSEMOD, which estimates future supply and needs for all publicly employed health personnel. A report is published every three years, projecting 25 years into the future.

- **Sweden** assesses current and future supply of different staff categories in order to issue recommendations about student intake and about specialist distribution of doctors and dentists, as well as recruitment policies. Focus is exclusively on supply side, up until 2015 (from 2012) for physicians, dentists, nurses and support staff.

- **United Kingdom** central workforce planning looks at the supply side and population needs, performing a gap analysis and projecting into the future by five to ten years. Modelling varies across England, Wales, Scotland and Northern Ireland, but all four nations look at both the supply and needs-based sides, for physicians, nurses, midwives and therapists.

On the basis of this description, it is possible to conclude that health workforce planning models can be distinguished on the basis of four main criteria:

- **Type of model**: supply-projection, demand-based or needs-based;

- **Timeframe:** how far into the future the model forecasts workforce planning). The timeframe of forecasting models is of key interest, because models that forecast further into the future will naturally be geared towards addressing long-term problems, whilst models with a shorter scope will usually look at the more short-term issues. It is important to note that long-term forecasting is inherently more uncertain, due to possible issues with compounded forecast model errors. This can be guarded against by out-of-sample testing[126], which test for modelling inaccuracies.

- **Indicators**: which main factors are taken into account within the scope of the model; and

- **Professions:** which professions are included within the model; analysing which types of healthcare professionals are covered by the models highlights the focus of a country's planning authorities: models which consider many types of healthcare professionals will have a broader scope than those which solely consider physicians.

More details about how national models differ on the basis of these criteria are provided in Section 5.0 of the Appendix. The main conclusions from this analysis are presented below:

- **Thirteen countries[127] engage in model-based health workforce planning, all of which use some form of supply-side projections.** Of these, eight also engage in some form of demand-side planning, of which three[128] are classified as using demand-based approaches and five[129] as needs-based approaches.

- **The projection time frame varies.** Generally, planning is at least five, but no more than twenty-five years into the future. Countries such as Denmark and Sweden generally forecast up to five years into the future, whilst Spain has forecast up until 2025, the Netherlands over the next twelve to eighteen years and Norway over the next twenty-five years.

- **A wide range of indicators are taken into account into supply-projection, demand-based and needs-based models, with few common strands across all models.** The number of workers is generally taken into account across supply-projection models, as well as education indicators and demographic factors. Beyond this, some supply models (e.g. the Danish and Swedish models) take migration patterns into account, or more specialised factors such as medicinal advances (Malta) or skill mix (Ireland, UK). Demand-based models tend to take a limited amount of factors into account, such as projected demographic trends and current service utilisation, whilst needs-based models take more factors into account, such as structural economic changes (Finland), specific GP requirements (Lithuania) or epidemiological developments (Netherlands).

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[126] Out-of-sample testing, in this context, refers to the procedure of testing a forecasting model, based on a specific time period of data, on other time periods to check for the validity of the forecast. For example, if 2000-2010 trends are used to predict 2010-2010 trends, out-of-sample testing may consist of using 1990-2000 data in the forecasting model, to see how accurately it would have predicted 2000-2010. If there is a good fit, the validity of the forecasting model is strengthened, whilst if the forecast fit is very inaccurate, the validity of the model should be questioned.
[127] Belgium, Germany, Denmark, Estonia, Spain, Finland, Ireland, Lithuania, Malta, Netherlands, Norway, Sweden and the UK.
[128] Belgium, Germany and the Ireland.
[129] Finland, Lithuania, Netherlands, Norway, and the UK.

- **Physicians are included across all models.** Nurses are presently fully in seven out of thirteen countries' models. Dentists are also included in seven models. The inclusion of other professional groups is more varied, e.g. midwives are included in the UK, Estonia, Norway and Finland. Only the Finnish and Norwegian models are stated to include all healthcare personnel.

In conclusion, as the above discussion highlights, health workforce planning and forecasting varies greatly across countries, but generally **all models include supply-side modelling and cover physicians, with a forecast horizon of at least five years.**

Training of health workforce planners

As discussed in Section 6.1, health workforce planning is not only particularly important, but it is also highly complex. For this reason, health workforce planners require specific technical and sector expertise and thus need to be trained accordingly. Universities across Europe offer general health human resource management courses. For instance, the faculty of Public Health at the University of Varna in Bulgaria offers a Public Health Management programme, which includes human resource management classes. In the United Kingdom, the NHS offers a Postgraduate Certificate in Strategic Workforce Planning. The course gives workforce planners the opportunity to obtain a recognised and credible qualification to support their constantly changing roles in the health profession.

In most cases, however, planners are health economists or statisticians that have not obtained degrees in health workforce planning, but might have attended national workforce planning workshops. For instance, the CfWI and NHS Education Scotland in conjunction with Skills for Health offer training workshops. Their online toolkits provide an overview of why workforce planning is important and offer a step-by-step process of how to start workforce planning. The key characteristics of this training include guidance on developing a plan, mapping out changes, defining and benchmarking current and required workforce, how to understand workforce availability, and how to implement and monitor the plan in order to deliver the required workforce.

6.3 Extending the Scope of Modelling

As mentioned in Section 6.1, the extent to which European countries engage in model-based health workforce planning depends on a number of factors, which include the perceived purpose of health workforce planning, the availability of technical and financial resources and the availability of data. While it is difficult to identify the perceived purpose of health workforce planning and evaluate the availability of technical and financial resources, it is possible to assess whether sufficient data are available in a country in order to carry out model-based health workforce planning.

From a data availability perspective, it is possible to conclude that there is significant scope for more countries to engage in model-based health workforce planning than is currently the case, and for countries already engaging in such planning to extend the reach of their current models.

The next sections outline how countries could extent the scope of supply-side and demand-side modelling and how bilateral or multi-lateral exchanges could be used to achieve this goal.

6.3.1   Extending the Scope of Supply-side Modelling

Even though key supply-side data are available across most countries (see Section 3.2.2), many countries do not conduct national supply-side workforce planning. From a data perspective, supply-side projections such as those used by Spain, Sweden or Ireland could feasibly be implemented in countries such as Portugal, Poland or Hungary. As noted elsewhere, headcount data on physicians are collected nearly everywhere in Europe, with many countries also covering a significant amount of other professions. In addition, data on demographics, mortality, graduation and retirement are widely collected across countries. Some countries, such as FYROM or Montenegro, where data problems have been identified, form the exception to this general recommendation of an implementation of more supply-projection modelling across Europe.

However, there are some caveats to be taken into consideration when suggesting that countries could extend the scope of their supply-side modelling. Firstly, supply-side workforce planning is largely only possible for the public sector, where data are readily available. Thus, taking private physician supply into account, as the Danish model does, will likely not be possible across many countries. Secondly, given the fact that trained healthcare professionals move into and out of health professions (professional flows), as well as around and between countries (geographical flows), the lack of appropriate professional and geographical flow data in countries other than Denmark, Finland, Sweden and Norway means that these important supply-side factors cannot be taken in account into many countries' models. In the absence of such data, any supply-side projections must rely on approximations or assumptions of professional and geographical flows.

6.3.2   Extending the Scope of Demand-side Modelling

Demand-side modelling is less straightforward than supply-side modelling, because the demand for the health workforce is only implicit through the population's direct demand for healthcare services. Consequently, measures of the demand for healthcare services must proxy for workforce demand. The fact that fewer countries use demand-side projections can be explained by the lack of data and lack of technical expertise. Measures of the demand for healthcare services (e.g. hospital bed utilisation, GP visits) are not as widely available as supply-side data. Epidemiological forecasts required to implement needs-based models are also not readily available in many countries. Additionally, using these proxy measures in models requires a degree of technical expertise which may not be available in many countries.

These problems should not take away from the fact that demand-side modelling is entirely necessary to adequately assess what a population's actual health needs are and to look at what the gap between supply and demand is. Even though at the present time, countries may have difficulties in implementing reliable demand models due to lacking data and expertise, in the future, this should be seen as a priority.

6.3.3 Extending the Scope of Bi- and Multilateral Best Practice Exchanges

Stakeholders consulted within the scope of the case studies did not make specific suggestions as to which countries it would be helpful for them to collaborate with in order to develop model-based health workforce planning system. Nonetheless, our analysis suggests that extended good practice exchanges between certain countries on the topic of health workforce planning could be mutually beneficial.

On the basis of the review of national models provided above, it may be advisable for countries facing similar problems or looking to extend the scope of their health workforce planning system to enter bilateral or multi-later collaboration and to exchange practices. Below, we provide some examples of possible useful bilateral or multi-later collaboration:

- One such group could include the **Scandinavian countries**: Denmark, Finland, Sweden and Norway. All of these currently use health workforce planning models, with their supply-side analysis relying on several similar aspects such as educational factors, migration patterns and drop-outs. Norway and Finland currently also use a needs-based model, which means that recounting their experience may aide Sweden and Denmark in developing their own needs-based models.

- The close collaboration between the **Netherlands and Lithuania**, with the latter heavily drawing upon the former's models, could be encouraged further.

- Of the three **Baltic States**, Lithuania and Estonia both use supply-projection models (Lithuania also uses a needs-based model). Given the similarity of the indicators used in these models, collaboration between the two countries could help them exchange practices. Although Latvia has temporarily shelved plans to introduce systematic health workforce planning due to financial difficulties, including Latvia in this collaboration could provide a forum in which Estonia and Lithuania provide advice and guidance for the future implementation of such a planning system.

- Several countries, such as **Slovenia, Hungary, Bulgaria and Greece**, have made first attempts at implementing model-based health workforce planning, but have not yet introduced such a system, due to a variety of political, budgetary and/or delivery issues. An exchange of how these countries envisage overcoming obstacles, in addition to obtaining advice from countries that have recently implemented centralised planning, could be mutually beneficial.

6.4 Common Key Issues

The extent and success of health workforce planning across European countries depends on two key aspects:

1. Identification, development and use of models and tools to balance and obtain forecasts on the demand and supply of human resources for health;

2. Development of an integrated system of health workforce planning, involving multiple institutions and stakeholders and influencing cross-cutting policies (health care, education, labour market, etc.)

Key challenges that can be identified across Europe with respect to these two aspects are explored separately in the sections below.

6.4.1 Analysis

The extent and success of health workforce planning, in terms of models and tools to balance demand and supply of human resources for health, vary considerably across countries. In some countries[130] substantial progress has been made to estimate the number of persons and the kind of knowledge, skills and attitudes required to achieve predetermined health targets and ultimately health status objectives. In others, however, national authorities lack the technical and financial capacities to analyse data and develop forecasts that would allow them to identify the right supply and skill set of human resources for health.

Several factors explain problems related to the balancing of demand and supply of human resources for health, within the current environment. These factors also continue to represent obstacles to further developments in more advanced countries. Like in the case of monitoring, the main problem driver appears to be the limited amount of financial and technical resources allocated to health workforce planning. We present some of these key issues below:

- **Lack of access to and use of planning methods and tools.** The extent to which health workforce planners are aware of and can access methods and tools to estimate and balance demand and supply of health workforce is limited. In addition, in some cases, health workforce planners might lack the technical, human and financial capacity to use these models, adapt them to their national context or develop alternative ones. In particular, tools to project health needs require advanced technical capacities and training. The fact that only a very limited number of countries organise formal training for health workforce planners might explain the lack of technical and human capability to use these methods and models.

- **Lack of appropriate and accurate data and information.** One of the key requirements for human resource planning in the health sector are accurate and comprehensive information systems on the actual number of health care workers and their distribution in the health system (Rechel, 2006). The lack of comprehensive and accurate data and information limits the extent to which national authorities can populate and run models to estimate health workforce requirements and thus obtain valuable projections on which to base their training and recruitment policies.

The aforementioned factors also have implications for **EU level projections and analysis**. The lack of adequate data and information, the limited access to and use of models and the underdeveloped workforce planning systems mean that there is insufficient information to analyse education capacities and demand of health professions at the EU level. European collaboration should aim to address this issue and develop estimates on the shortages or excess supply of adequately trained health workforce at EU level.[131]

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[130] In particular, Finland, Ireland, Norway, the Netherlands and the UK.
[131] The case studies carried out as part of the feasibility study will explore this issue in more details and they will aim to estimate how far is the EU from having sufficient numbers of adequately trained health workers.

6.4.2   Strategy

The extent and success of health workforce strategies vary considerably across countries. In some countries[132] integrated systems for planning health workforce rely on and influence broader health strategies. Through the involvement of multiple stakeholders and taking into consideration anticipated future health needs, national authorities identify health targets and health status objectives. National health workforce planning authorities develop estimates on the number of persons and the skills set required to meet these predetermined health targets. In this way, health workforce planning is responsive to changing health needs and, at the same time, ensures the sustainability of the health systems.

In most countries, however, this is not the case and integrated systems for planning health workforce are not yet developed. According to national stakeholders and the analysis carried out as part of this feasibility study, many countries lack a comprehensive health workforce strategy aimed at achieving predetermined health targets and not all countries even have a broader national health strategy. According to a survey, 22 out of 25 Member States[133] have an overarching national EU Health Strategy (PHEIAC 2011: 130). Several factors explain the limited success of planning and implementation of health workforce strategies across European countries.

These factors continue to represent obstacles to further developments in more advanced countries. We present some of these key issues below:

- **Low levels of stakeholder involvement.** Workforce development plans need to be increasingly formulated through a collaborative process. Ministries of health now need to plan a health workforce for pluralist health systems and this cannot be done without including other sectors (WHO, 2010). In some countries, workforce planning is not yet structured in an integrated manner, namely involving multiple stakeholders and multiple institutions, such as professional associations and education and training institutions. This inevitably undermines the success of health workforce strategies and the extent to which they can influence decision making.

- **Strategic engagement of workforce planning institutions.** Workforce planning functions and processes need to influence decision making. In this way, policy makers would be able to develop policy options based on workforce projections and a financially feasible picture of the future, in which the expected supply of human resources for health matches the requirements for staff (WHO, 2010). In some countries however, workforce planning is detached from decision making in the health system and in the education system. Thus, it is not possible for planning institutions to strategically engage with institutions at other levels and ultimately to influence outcomes.

- **No evaluation of workforce planning outcomes.** In most settings, the outcomes of workforce planning and its impact on decision making at the national, regional or local level are not clear. Moreover, in most cases, these outcomes are not monitored and evaluated and, consequently, it is difficult to assess whether workforce planning has been successful. This implies that existing shortcomings and room for improvement are difficult to identify.

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[132] In particular Finland, Lithuania and the UK
[133] The study does not specify which countries responded.

# The European Dimension of Health Workforce Planning

European countries are facing similar challenges when it comes to sustainability and affordability of their health systems. Many European countries still lack the tools to be able to estimate present and future health workforce supply and demand. The limited availability of relevant indicators, the poor comparability of data at the national and international level and the scarce use of planning tools prevent many countries from developing adequate health workforce planning strategies and systems. Even though definite estimates on possible shortages of health professionals have been developed only in a handful of countries, it appears that, across Europe, the current supply and skill mix of human resources for health might not be adequate to meet future health needs. In addition, intensifying mobility flows (within country and across country) affect the structure and skill mix of health workforce across Europe and need to be taken into consideration when ensuring the sustainability of the system.

These challenges and trends have a clear European dimension as they are shared and widespread across countries. European collaboration can help addressing some of these common challenges, tackling interdependencies across countries. Recognising the international dimension of the health workforce crisis and recognising the key role of health workforce planning, the European Commission, together with other international institutions (e.g. WHO, OECD, etc), have proposed policies and tools which aim to support national governments.

While there are important interdependencies across countries, which should be addressed through broad and comprehensive action, it is also important to recognise the complexity of health workforce planning. Not only does it involve multiple areas at the national level (such as labour market, education, health), but it also encompasses multiple governance levels (international, European, national, regional and local). Each of the separate dimensions of health workforce planning can take place at different governance levels and can draw on multiple aspects, such as the educational system, for instance. Moreover, the governance mechanisms can differ across professional occupations and entities. For this reason, cooperation should take place at multiple levels and encompass multiple areas.

The figure below outlines different types and levels of cooperation on health workforce planning, which can be found across Europe. The scenarios for collaboration presented in the next sections take this structure into consideration and explore the possibility of exploiting existing cooperation and initiatives.

Figure 29 – Different Level of Cooperation on Health Workforce Planning
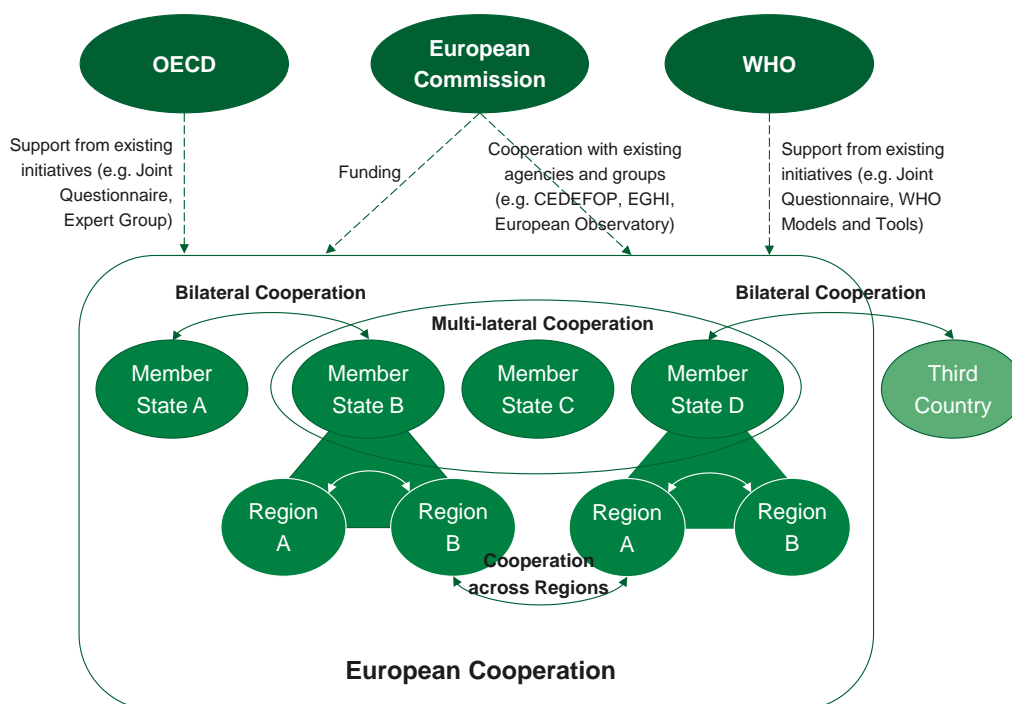
As discussed in Section 2.3.1, the European Commission has recognised that collaboration could help countries face this crisis. The analysis carried out in this study suggests that there are mainly two ways in which European collaboration could help address the EU-wide health workforce 'crisis':

a) **Providing support to national authorities,** in order to improve national health workforce systems, through any possible available tool and relying on existing initiatives; or

b) **Creating tools, methodologies, common definitions and indicators** to carry out monitoring and analysis exercises at the European level.

Each of these alternatives will be explored separately in the next two chapters. **Sections 8.1 to 8.4 included outline scenarios for collaboration through which support could be provided to national authorities (option a).** These scenarios for collaboration primarily aim to provide a dashboard of tools that help national authorities improve their health workforce planning systems. As explained in the next chapter, these scenarios for collaboration can be operationalized within specific work packages of the EU Joint Action (see Section 1.2).

Section 8.5 outlines how tools, methodologies, common definitions and indicators can be developed and used at the EU level in order to carry out health workforce forecasting. It appears that action at EU level could effectively support national governments in addressing the health workforce 'crisis' by carrying out one-off exercises to monitor and analyse health workforce. This would result in the provision of data, forecasts and assessments to national authorities, which would then address the problem at the national level. This collaboration alternative would envisage the development of an EU-wide health workforce planning model.

7.0   Scenarios for Collaboration under the EU Joint Action

As discussed in more details in Section 1.2, in November 2010, the European Commission communication on '*An Agenda for new skills and jobs: A European contribution towards full employment*'[134] suggested that launch of a **Joint Action** under the Health Programme[135] on forecasting health workforce needs and workforce planning. As mentioned in the 2012 Work Plan[136], European collaboration could 'add value in mapping the skills and competencies needed for the future and helping to equip health workers with the necessary education, as well as determining crucial factors for a satisfactory working environment' (European Commission, 2011). In particular, the EU Joint Action should:

a) Support countries in the development of overarching, long-term national health strategies;

b) Support countries in the development of comprehensive and integrated health workforce planning systems;

c) Look at interdependencies across countries and tackle common issues.

Before describing in more details how these objectives can be achieved through specific scenario for collaboration within the framework of the EU Joint Action, it is important to stress that **there are some conditions that, if met, would maximise the value of collaboration.** The factors that are conducive to the success of collaboration and of the EU Joint Action are described below.

- **Generating stakeholders buy-in:** any scenario for collaboration requires financial and technical inputs from national authorities and Ministries of Health in particular. Particularly in the current economic circumstances, national authorities have a limited amount of resources at their disposal, which needs to be allocated in the most efficient and effective way. Health workforce planning has often not been a priority for national health systems. In order to generate stakeholders buy-in and hence raise sufficient amount of resources, it will be important to **stress, during the EU Joint Action, the central role played by health workforce planning in ensuring the sustainability of health systems** (see Section 2.2).

- **Financing the collaboration:** most of the scenarios for collaboration could be financed either at the European or at the national level: they in fact appear to have a clear European dimension, while at the same time contributing to the sustainability of national health systems. In the current economic circumstances however, raising sufficient financial resources might be difficult, particularly at the national level, if adequate stakeholders buy-in is not generated. In this sense, it will be crucial to **exploit the synergies with existing EU or international initiatives and to explore the use of the EU financing tools mentioned in the scenarios.**

- **Maximising the uptake:** the success of scenarios for collaboration on health workforce planning will depend on the uptake of any initiative and the extent to which stakeholders at the national and regional level will participate in the collaboration. If national health workforce planning systems are not revised on the basis of the learning points drawn from the

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[134]COM (2010), 0682 final of 23 November 2010, available at: http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2010:0682:FIN:EN:PDF
[135] OJ L301/3, Decision 1350/2007/EC of 23 October 2007 establishing a second programme of Community action in the field of health
[136] Commission Implementing Decision of 1 December 2011 on the adoption of the 2012 work plan, serving as a financing decision, in the framework of the second programme of Community action in the field of health (2008-2013), the selection, award and other criteria for financial contributions to the actions of this programme and on the EU payment to the WHO Framework Convention on Tobacco Control (2001/C 358/06)

collaboration, any collaborating effort would have been vain. For this reason, **generating stakeholders buy-in at the early stages of the collaboration will be crucial**. In particular, the crucial role of health workforce planning in ensuring the sustainability of health systems should be highlighted (see Section 2.2).

Bearing these key conditions in mind, the following sections present a dashboard of collaboration tools. These tools could help national authorities improving their national health workforce planning system and address some of the upcoming challenges, which undermine the sustainability of national health systems. Hence, these tools aim to support the improvement of national health workforce planning systems rather than replacing them. This implies that ultimately **change will be achieved only if national authorities are committed to ensure that their national health workforce systems achieve their perceived purpose**, whether it is monitoring, analysis or strategic planning. Within the description of each scenario, we outline how national uptake could be maximised in order to trigger a change in the national health workforce planning system.

In this section, the scenarios are grouped across the three key dimensions of health workforce planning. Based on the conceptual overview and the baseline analysis of health workforce planning methodologies implemented across the world, it is possible to identify three different purposes of workforce planning.[137] These different dimensions of workforce planning are not necessarily mutually exclusive and often build on one another. The table below outlines the three key dimensions of health workforce planning, the questions each dimension proposes to answer and the topic of collaboration that could improve each dimension.

Table 36 – Key Dimensions of Health Workforce Planning

Dimension	Description	Research Questions	Topic of Collaboration
Monitoring	Data on the current and future health workforce are collected to monitor performance and forecast (e.g. expenditure)	What data do we need about the current and future health workforce? What data do we have about the current and future health workforce?	Data for Health Workforce Planning
Analysis	To respond to challenges in terms of balancing the demand for and the supply of human resources for health, within the current environment	How do we use data to identify challenges? How do we balance health workforce demand and supply within the current environment?	Exchange of good practices in planning methodologies
Strategic Planning	Over the longer term direction of the health system, including resource allocation, system characteristics,	How do we institutionalise workforce planning across the health system? What are the policy levers to	Horizon scanning Sustainability of the results of collaboration

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[137] For more details see Section 6.1

alternatives and trade-off, and ensuring a sustainable health workforce	anticipate future needs, increase system responsiveness and ensure a sustainable health workforce?	

The scenarios for collaboration presented below encompass stakeholders' suggestions collected during the case studies and experts' opinions collected during the focus discussion. They also take into consideration the analysis and in particular the key challenges summarised in the previous sections.

7.1 Monitoring

As Section 0 has shown, there remain a number of significant obstacles which hamper the effective monitoring of human resources. These key challenges are summarised in the table below.

Table 37 – Key Challenges of Monitoring

Stock Data Challenges	Flow Data Challenges
Limited human, technical and financial resources	
No clear sense of purpose behind data collection Different purposes for different data collection activities	Sources for migration data are limited if existent at all
No agreed definitions and indicators	Absence of a single definition of health professional mobility (foreign trained, foreign born, foreign nationals)
Multiple sources providing information on the health workforce	Poor data on source flows and destination flows

Given this background, collaboration at the regional, national and international level could have a beneficial impact in terms of (a) harmonisation of indicators, (b) supporting data sharing at multiple levels and (c) capacity building.

7.1.1 Web Portal to Sign-Post Data Sources

The mapping of existing data collection methodologies has suggested that, in every country, there are multiple sources providing information on human resources for health stocks and flows. As a consequence, **national workforce planning authorities cannot rely on a one-stop-shop database where all relevant data on human resources for health are collected and reported.**

Objectives

As discussed in Section 3.2.2 ('National Data Collection'), data on human resources for health are collected by different institutions at the national level (e.g. Regional/National Statistical Offices, Ministries of Health, Professional Associations, etc.). Consequently, data are reported on multiple databases hosted on different sources, such as:

- National Statistical Office database;

- Service Providers' databases (e.g. NHS Website);

- Professional associations' websites or reports;

- Professional Registries, which are not usually publicly accessible;

- Health/Social Security Insurers databases, which are not usually publicly accessible.

Due to the existence of these multiple and often overlapping data sources, information on the supply and demand of human resources for health is not easily accessible. This contributes to the limited accessibility of information and the consequent limited availability of data to support health workforce planning. This ultimately hinders forecasting and planning for the health workforce.

In order to tackle these shortcomings, collaboration across European countries could focus on **ensuring that data sources are accessible across countries.** The collaboration could focus on the development of a web portal, which sign posts to all the data sources which are relevant for health workforce planning in different countries.

Content

Every European country would have a dedicated page on the web portal. This page would contain:

- A **list of data sources**, with direct link to national websites;

- A **brief description of each source**, with the indicators collected and data reported;

- One **contact point**, with which stakeholders can get in touch in case they need further explanation or information; and

- **Direct link to the section of the Eurostat database** that analyses the outcomes of the Joint Questionnaire.

The contact point could be the national authority responsible for the monitoring of implementation of the WHO Code of Practice (see Section 2.3 for more details), so that countries do not have to identify an authority specifically and exclusively responsible for this web portal. The contact point would also be responsible for updating the respective national page. **The web portal could be developed under the EU Joint Action and hosted on its web page.**

Benefits

It is possible to identify three main reasons why this type of collaboration could be beneficial:

First of all, it would improve data accessibility at the national level and across countries. National stakeholders (health workforce planners, professional associations, policy makers) would be able to quickly access all relevant data for health workforce planning in their own country. One of the key challenges identified with respect to the monitoring of human resources for health relates to the fact that, in most countries, there are multiple sources of data and information. The web portal would not aid the integration of these multiple sources of information, as the development of an integrated one-stop-shop with data on the health workforce should be a prerogative at the national level. However, the web portal would at least ensure that all the data sources are identified and are accessible

from one single web page. Moreover, the portal would allow national authorities to have access to similar data from other countries.

This type of data sharing could be particularly beneficial among groups of countries or regions, which are characterised by intense migration flows. In addition, it could be particularly beneficial for neighbouring countries, which experience the same challenges in relation to health workforce and health systems generally, and which share the same labour market. For instance, stakeholders in Finland have argued that as the flow of health workers (and doctors in particular) from Estonia to Finland is substantial, national authorities from Finland should have access to data on Estonian human resources for health and vice-versa. This would allow both countries to monitor the flow and forecast supply and demand accordingly. It might also help the two countries predict future changes in the magnitude and direction of the flow.

Secondly, the web portal would allow national data collection authorities to benchmark their data collection activities against those of other countries. Having access to other databases might persuade national data collection institutions to compare their system with systems in other countries. This might allow them to identify specific data gaps and indicators[138], which should be explored to support health workforce planning or alternative, more effective ways of obtaining and presenting relevant data. This would be particularly effective if each national page on the web portal contained a brief description of the indicators covered and of the scope of the data across health and medical professions. Benchmarking and comparison could motivate national data collection authorities to do more, while helping them identifying their specific data gaps.

Thirdly, a link to the outcomes of the Joint Questionnaire, as reported by Eurostat, could improve the accessibility and promote the use of the questionnaire's results at the national level. One of the shortcomings of the Joint Questionnaire appears to be the limited use made of it by national health workforce planning institution. The questionnaire continues to be seen as a comparative exercise and not as a tool for health workforce planning. The inclusion of a source of information regarding the Joint Questionnaire on the web portal could clarify its purpose and its scope and ultimately support its use.

Finally, the data sources web portal could also be instrumental to the achievement of international goals and codes of practices, such as the WHO Code of Practice on the International Recruitment of Health Personnel. Effective gathering of national and international data, research, and sharing of information on the international recruitment of health personnel are essential to achieve the objectives of the code (Article 3.8).

Limits and Risks
There are also limits and risks related to the development of the data sources web portal. In terms of limits, as mentioned before, the web portal does not ultimately lead to the integration of multiple data sources at the national level. Data collection would remain fragmented, at least in the countries that rely on multiple data sources for the monitoring of human resources for health. The development of an integrated one-stop-shop with data on the health workforce should be a prerogative at the national level, which cannot be fully addressed only addressed through international collaboration.

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[138] A list of relevant indicators is presented in the next section.

In terms of **risks, there might be issues related to privacy setting and accessibility of confidential information**. Stakeholders have suggested that some of the data sources used at the national level are confidential and cannot be made publicly available.[139] Multilateral agreements could be signed between countries in order to agree on confidentiality rules. Alternatively, the web portal could be secured through limited access, which would be granted only after formal submission of a request. Moreover, another key risk is related to the provision of out-dated information and data, which would undermine the purpose of the data sources web portal. In order to avoid this risk, national contact points need to frequently update the information provided on the national page.

Scenario 1: Web Portal to Sign-Post Data Sources	
WHAT?	Country specific pages including: • list of data sources, with direct link to national websites; • brief description of each source, with the indicators collected and data reported; • contact point, with which stakeholders can get in touch in case they need further explanation or information; • notes on any data limitation or data gaps; and • direct link to the section of the Eurostat database that analyses the outcomes of the Joint Questionnaire
WHY?	• Improve accessibility of data within and across countries • Improve accessibility and facilitate use of Joint Questionnaire's results • Facilitate benchmarking of data collection activities • Trigger exchange of good practice • Motivate countries to take steps to improve data collection
WHERE?	• European level, but should foster bilateral cooperation
WHO?	• National contact points should be responsible for the update of all the information on country-specific tables
HOW?	It could be hosted on the EU Joint Action website

7.1.2 Expert Group on Indicators

The mapping of existing data collection methodologies (Section 0) has suggested that there remain significant data gaps with respect to human resources for health across countries. This ultimately hinders forecasting and planning for health workforce. In some countries, data gaps are due to limited availability of data, as certain indicators are simply not covered by data collection efforts in the country.

Objectives

A significant problem driver in this respect is the lack of a sense of cohesive purpose behind data collection. Data on human resources for health are collected for various purposes; but only in a very limited number of countries data are collected for health workforce planning. Hence, certain indicators, which are crucial to forecast and carry out an effective planning of resources, are not covered by data collection. As a consequence, many of the data available at national level are also not integrated and used in health workforce planning.

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[139] Interview with stakeholders in Belgium

European collaboration could help countries identify a key set of common indicators for health workforce planning. Agreeing on common indicators would help improve national data collection, ensure greater accessibility and comparability of information and develop a better understanding of aspects that influence present and future demand and supply of human resources for health. In addition, and most importantly, it would help countries target their data collection activities to a specific purpose and possibly allocate data collection resources more effectively.

Content

At the moment, there is in fact no agreement at the international level on minimum data requirements for health workforce planning. For this reason, this scenario proposes to **task an experts group with identifying a set of key common indicators** that are instrumental to health workforce planning. This task could be carried out over a fixed term project assigned to the experts by the EU Joint Action consortium. Firstly, the group would develop a general template on minimum requirements for health workforce planning. This will be neutral and will not make reference to any specific planning model. Secondly, based on these minimum requirements, the group will identify key common indicators for the data collection. The set of key common indicators should not be instrumental to the use of any specific planning model; in other words, it should be broad and general enough to support the use of a large group of demand and supply planning methods.

For instance, forecasting and planning for human resources for health is difficult unless data on **age profiling** of the health workforce are available. Hence, age could be one of the key indicators to be included in the list. **Gender, specialisation and full-time equivalents** could be further key indicators. Similarly, the experts group should clarify which mobility indicators should be used, whether foreign nationals, foreign born and foreign trained, so that national data collection authorities would know on which indicator to concentrate on.

In this sense, the work done by the WHO and OECD with respect to the **Minimum Dataset for international flows could be particularly useful.** As discussed in Section 3.2.1, the WHO and the OECD have developed a proposal for a Minimum Dataset. The purpose is to invite national data collection institutions to collect data on health workforce mobility on the basis of specific indicators, in order to develop a minimum dataset to support health workforce planning.

In addition, the experts group should take in consideration the work carried out as part of the **ECHI and ECHIM projects** and cooperate with the participants of the on-going Joint Action for ECHIM (see Section 3.2.1). While these projects have not engaged with data on human resources for health in particular, some of the key indicators identified as part of these exercises might be relevant. The experts group should however make sure to maintain its focus on key minimum indicators to support health workforce planning.

Once the experts group has identified key indicators, it would concentrate on the dissemination of its results and capacity building. The expert group could advise national data collection authorities on how to collect the relevant data and how to use the indicators. This advisory role could be exercised during international conferences or workshops. These events could also be tied on the back of other occasions; there would be no need to organise separate events for the dissemination of the key indicators. During the

conferences, the experts group would provide open advice, but would engage primarily with (a) policy makers, in order to ensure that they authorise and trigger a change in data collection methodologies; and (b) data collection institutions, in order to train them regarding the use of the key indicators.

Benefits

The key benefit of this scenario for collaboration would be the creation of a sense of purpose among policy makers behind data collection. Data collection should be targeted at health workforce planning and should effectively support forecasting efforts. Firstly, national data collection authorities would be able to benchmark their activities against the key indicators, to identify possible data gaps. Secondly, they could adapt their data collection accordingly to the key indicators. As a consequence, the identification of key indicators could also lead, to a certain extent, to the harmonisation of data collection efforts across Europe.

Limits and Risks

The effectiveness of this scenario for collaboration in achieving its goals depends on the **extent to which policy makers and national data collection authorities would take up any recommendation to implement the key common indicators.** Unless national data collection exercises are adapted to encompass the specific indicators, the benefits of this scenario would not be accrued. In this sense, while the expert group will have a key role in the dissemination of the key indicators and in the implementation at the national level, it might not be able to build consensus around the need to use key common indicators at the national level.

For this reason, it will be crucial to build up EU-wide consensus among policy makers leading to the implementation of key common indicators. Once the experts group has identified a list of indicators, it should be validated by national data collection institutions, taking into account data availability. This validation round could be carried out as part of the EU Joint Action. One of the objectives of the EU Joint Action should hence be achieving wide agreement on the list of key common indicators. All the participating stakeholders should realise the need to have key common indicators and they should appreciate the benefits of adapting national data collection accordingly. The availability of data on human resources for health is in fact crucial in order for health workforce planning to effectively analyse current demand and supply and to develop precise projections on future health needs. Unless specific indicators are available, national health workforce planners would not be able to analysis and strategically plan for human resources for health. Ultimately, this would hinder the sustainability of national health systems.

Existing international data collection initiatives, like the Joint Questionnaire (see Section 3.2.1), successfully collect comprehensive and comparable data on human resources for health, using existing available sources. However, they do not aim to influence national data collection activities. Only the on-going Joint Action for ECHIM has, among its objectives, to implement the ECHI shortlist indicators in the Member States. For this reason, in order for this scenario to be effective, the coordinators and work package leaders of the EU Joint Action on Health Workforce Planning should draw lessons and experiences from the on-going Joint Action for ECHIM and possibly envisage direct collaboration with the participants in that Joint Action.

Another key challenge to overcome as part of this scenario for collaboration regards the composition and financing of the experts group. In this sense, two options can be identified:

a) **The EU Joint Action consortium could be responsible for defining the composition and financing the experts group.** The group should probably include European experts and academics with experience in developing and using health workforce planning models. The involvement of European data collection experts, including Eurostat, OECD and WHO experts that have been in charge of the design of the Joint Questionnaire and of the Minimum Data Set (MDS) could be particularly beneficial. The EU Joint Action consortium (i.e. the partners involved) should also be responsible for the appointment and financing of the experts group.

b) **The European Commission could be responsible for defining the composition and financing the experts group.** In order to finance the expert group, synergies with existing networks should be explored. For instance, the European Commission (DG SANCO) has appointed an Expert Group on Health Information (EGHI), which coordinates the position of Member States in implementing health monitoring and information under the Public Health Programme. Technical groups[140] have been established under EGHI, in order to take forward work in specific areas. These technical groups have a specific and time-limited mandate to achieve a specific result and report back to EGHI. **A technical group on health workforce planning indicators could hence be envisaged as part of EGHI.**

Scenario 2: Experts Group on Indicators	
WHAT?	A group of European experts that identifies a common set of minimum indicators to support health workforce planning, including possibly: - age profiling - gender - specialisation - full-time equivalents
WHY?	- Create sense of purpose for data collection - Ensure that data collection is targeted to health workforce planning - Advise data collection institutions and policy makers on data to collect - Support benchmarking of national data collection practices
WHERE?	European level
WHO?	Group of European experts or academics: - to be appointed by Joint Action Group - with experience in developing and using health workforce planning models
HOW?	Joint Action Consortium/European Commission to identify and appoint group of experts Experts to review existing models and identify common minimum indicators (over fixed time project) Experts to dissemination and advise national authorities on key common indicators

7.1.3 Common Minimum Dataset

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[140] For instance, one of these technical groups is the European Community Health Indicators Monitoring Group (ECHIM Group).

One of the key challenges of existing data collection methodologies is related to the non-comparability of data across sources and across countries. This prevents national authorities across Europe from having a clear and complete picture of stock and flows of human resources for health within their country and within Europe. National health workforce planners should in fact take into consideration dynamics and trends in neighbouring countries or in countries that share the same labour market. The impossibility of accessing and interpreting data on stock and flows in those countries ultimately hinders forecasting and planning. While this challenge can be addressed by obtaining data from neighbouring countries or countries that share the same labour market, it appears that **having a common minimum dataset across Europe or across regions could facilitate this exchange of information.**

Objectives

As mentioned in the section above, the identification of key indicators could lead, to a certain extent, to the harmonisation of data collection efforts across Europe. It would improve the level of comparability of data and would be supportive to a more comprehensive health workforce planning. Moreover, it would enable the creation of a **common minimum dataset**, which would ensure full accessibility and comparability of data across countries. Once key indicators are agreed upon and implemented at the national level, an EU-wide dataset could collect data on those specific indicators. The database would contain minimum information on both stocks and flows of human resources for health.

Content

With respect to information on the **stocks of human resources for health, the common minimum dataset would contain data on specific stocks indicators, which should already be collected at the national level**. In this sense, the database should contain national data on, for instance:

- age profiling,
- gender,
- specialisation and
- full-time equivalents

With respect to information on the **flows of human resources for health, the common minimum dataset would contain data on specific flows indicators, which are already collected at the national level**. In this sense, the database should contain national data on, for instance:

- Nationality, age and sex
- Country of birth
- Employment status and specialisation
- Country of first qualification
- Country of last qualification
- Country of registration
- Type of license

This list of indicators on flows of human resources for health is based on the recommendation developed by the WHO and OECD, as part of the **Minimum Dataset for international flows could be particularly useful.** As discussed in Section 3.2.1, the purpose of the minimum dataset is to invite national data collection institutions to collect data on health workforce mobility on the basis of specific indicators.

National data sources, such as professional registries, social security insurance databases and databases of other authorities responsible for diploma recognition procedures, provide the information necessary to build these indicators. **The common minimum dataset could also rely on other sources to complement the data on health workforce flows collected at the national level**. For instance, the following data sources could be used:

a. **Data reported through the WHO Code Report.** The code recommends that, for purposes of international communication, each Member State should designate a national authority responsible for the drafting of a data report, which provides updates on data collection every three years. This data reports could be used to inform the database and to identify missing information on stock and flows of human resources for health.

b. **Data collected through the European Professional Card**, proposed by the revision in Directive on the recognition of professional qualifications (2005/36/EC) (see Section 4.10.1). The European Professional Card is a voluntary instrument offered to professionals to allow easier and faster recognition of qualifications. It will be associated to an optimised recognition procedure carried out within the existing Internal Market Information System (IMI), which also automatically collects data on the professionals that decide to adopt the card. The contribution of the European Professional Card to data collection would of course depend on how many professionals adopt it, since it is voluntary.

c. **Relevant data collected by other European agencies,** such as European Foundation for the Improvement of Living and Working Conditions (Eurofound), European Agency for Safety and Health at Work (OSHA), European Centre for Drug and Drug Addiction (EMCDDA), European Centre for the Development of Vocational Training (CEDEFOP), European Centre for Disease Management and Control (ECDC), European Medicines Agency (EMEA) and Office for Harmonisation in the Internal Market (OHIM).

Benefits

The creation of a common minimum dataset on health workforce could significantly improve the accessibility and comparability of data cross European countries. This would ultimately allow them to develop robust estimates of future supply, taking into consideration supply and demand in relevant countries and mobility. The minimum dataset would increase the accessibility of information, facilitating the work of health workforce planners at the national level. Its accessibility is also likely to increase the validity of the data reported, as multiple stakeholders would be able to check the reliability of the information.

Limits and Risks

There are some important aspects that could influence the success of this scenario for collaboration. The identification of common key indicators and the related adaptation of data collection exercises at the national level are prerequisites to the success of this specific scenario. Thus, the scenario cannot be proposed and implemented independently.

Scenario 3: Common Minimum Dataset	
WHAT?	Common minimum dataset based on minimum indicators list • Stock data • Flow data
WHY?	• Ensure accessibility of a minimum set of data across countries • Ensure full comparability of data across countries
WHERE?	• European level or • Bilateral level: common databases between countries with intense flows
WHO?	• EU Joint Action Consortium
HOW?	Technical group to retrieve data from: • National sources • Joint Questionnaire • European Professional Card • WHO Code reports

7.2   Analysis

As Section 6.4.1 has shown, there remain a number of significant obstacles which hamper the analysis of demand and supply of human resources for health. These key challenges are summarised in the table below.

Table 38 – Key Challenges in Analysis

Challenges
Limited financial and technical resources
Uneven level of development across countries
Limited access to and use of planning tools and methods that prevents countries from effectively balancing demand and supply of HRH
Lack of appropriate and accurate data, as collection is not targeted to planning

Given this background, collaboration at the regional, national and international level could have a beneficial impact. Below we present some possible scenarios for collaboration across European countries.

7.2.1   Experts Group on Planning Methods and Tools

The mapping of health workforce planning methodologies (Section 6.2.2) suggests that the extent and success of health workforce planning, in terms of models and tools to balance demand and supply of human resources for health, vary considerably across countries. This appears to be due to two main problem drivers:

- the lack of financial and technical resources in some countries; and
- the limited access to methods and tools.

Objectives

International cooperation could be envisaged in order to tackle in particular the second of these problem drivers. International institutions and some national authorities have recognised this[141] and have invested resources to identify and exchange good practices on the analysis of demand and supply of health workforce. At the international level, WHO has identified, collected and made available on its website methods and tools to estimate the supply of and demand for human resources for health. However, interviews with national level stakeholders suggested that the accessibility and use of these methods and tools is still limited and that only few experts are aware of the WHO toolbox.

In order to complement these efforts and improve the accessibility of methods and tools for health workforce planning, **an experts group on planning methods and tools could be created** as part of the EU Joint Action. The main tasks of the experts group would be:

a. to **increase accessibility to existing models and tools**;
b. to **facilitate the introduction and implementation** of methods and tools at the national level; and
c. to **ensure the sustainability** of the exchange of good practices.

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[141] Interviews with stakeholders in Finland, Spain, Lithuania, Hungary, Slovenia, the UK

Content

Firstly, the experts group could **review and assess all existing workforce planning methods and tools** that can inform policy making. In this sense, it would also play a quality assurance role, to identify and shortlist only the good practices. Secondly, the expert group could **develop guidelines or learning packages** to outline the possible implementation of the tools at the national level. Finally, the experts could work more closely with national health workforce planning authorities and policy makers to **help them introduce and use the short-listed models**. This fix term projects with experts would however have to be financed through national budgets, as needed. In addition, in order to ensure the sustainability of its results, this project must be endorsed by national government that eventually will finance the implementation and use of the tools.

The group should be composed of **academic experts, economists or statisticians** that have been involved in the development of existing good practice models. It could be assigned a **fixed term project** to review the models and develop the guidelines. In addition, the experts should seek the support and collaborate with experts at WHO, who have already identified and reviewed existing models.

Benefits

It is possible to identify three main reasons why this type of collaboration could be beneficial:

- **Quality assurance:** the experts group would be in charge of reviewing existing practices, according to specific criteria. This would allow them to identify models and tools that can be widely considered good practices. In addition, they would be able to identify some of the shortcomings of other existing models. This evaluation might also be useful for national health workforce planning authorities that have developed the model or that are using it.

- **Accessibility:** the experts group would identify good practice models and work on their dissemination across countries. Guidelines and learning sets developed by the experts group would allow national health workforce planners to develop an improved understanding of the models and their functioning. This would help addressing the issue of limited access to models and tools.

- **Capacity building:** academic experts, economists or statisticians that are part of the group could then work on fixed term projects to support national authorities in the implementation of the tools. In this function, they would support capacity building in specific countries and help countries develop technical capacities to use health workforce planning models.

Limits and Risks

The main challenge to the implementation of this scenario for collaboration is related to its appointment and financing. Like in the case of the expert group on indicators (see Section 8.1.2), there are two possible alternative means of financing:

a) **The EU Joint Action consortium could be responsible for the appointment and financing of the experts group.** In order for national authorities to agree to finance this type of collaboration, sufficient stakeholders buy-in needs to be generated in the early stages of the EU Joint Action. In particular, national authorities need to understand that unless planning tools are available, national health workforce planners will not be able to foresee future shortages in human resources for health and address these challenges accordingly. This would ultimately undermine the sustainability of national healthcare systems. As discussed in Section 6.0, only a very

limited number of countries can currently rely on methods and tools to develop projections on the demand and supply of human resources for health. However, as discussed in Section 6.3, it appears that many European countries could easily introduce more sophisticated planning methods and tools. Moreover, the exchange of good practices promoted through this scenario for collaboration could actually help avoid any additional cost related to the development of new planning methods and tools.

b) **The European Commission could be responsible for the appointment and financing the experts group.** Like in the case of the expert group on indicators, synergies with existing networks could be explored. A technical group on health workforce planning models and tools could be envisaged as part of EGHI.

In addition, it is important to consider the fact that some of the methods and tools used for health workforce planning are commercially provided by profit making companies and consultancies. For this reason, shortlisting certain tools might have commercial implications that would need to be considered.

Finally, in order to ensure the success of this scenario for collaboration, the work of the experts group should be complemented by other instruments, in order to ensure full and sustainable accessibility to the tools. Platforms through which the experts group could disseminate the results of their research and do capacity building should also be envisioned. The next scenarios for collaboration could help overcome the limits of the experts group.

Scenario 4: Experts Group on Planning Methods and Tools	
WHAT?	A group of European experts that: • identifies a set of methods and tools for health workforce analysis • builds capacity at the national level on the use of methods and tools
WHY?	• Quality assure good practice models • Increase accessibility to existing models and tools; • Build capacity • Ensure the sustainability of the exchange of good practices
WHERE?	• European level
WHO?	Group of academic experts, economists or statisticians with experience in developing and using health workforce planning models
HOW?	Joint Action Consortium/European Commission to identify and appoint group of experts, which reviews models and develops guidelines or learning packages

7.2.2 European Conferences

As discussed above, one of the main challenges related to the analytical aspects of workforce planning is the limited access to adequate planning methods. The experience of Lithuania (see Section 7.2.2) and other countries that have successfully transposed foreign workforce planning models suggests that international conferences constitute a valid platform for the exchange of good practices. In fact, Lithuanian national expert became aware of foreign workforce planning models and set the basis for valuable collaboration during international conferences.

This suggests that international conferences and meetings represent important starting points for the exchange of good practices and to ensure accessibility of methods and tools.

Content

This scenario for collaboration would be particularly effective if combined with the work of the experts group on methods and tools. During international conferences the experts group could:

a. **Present a short list of good practice methods and tools**, which would include outlining their strengths and weaknesses;

b. **Provide material, such as guidelines and learning sets**, on the implementation and use of each method or tool;

c. **Organise more specific and targeted meeting** with national authorities interested in the transposition of the tool.

In order to effectively support the exchange of good practices, international conferences on methods and tools should involve two main sets of stakeholders, namely health workforce planners and policy makers. The focus of the discussion should also be adapted according to the profile of participants.

- **Technical conferences:** this type of conference would be targeted at health workforce planners, including economists or statisticians that are in charge of the development and implementation of health workforce planning models. The main purpose of these conferences would be capacity building and knowledge sharing. The experts group would provide technical details on the methodology used, conceptual models, inputs and outputs indicators to be used in each model. This type of meeting should take place at least twice a year, in order to recurrently update participants on recent developments in the field. Given their technical focus and considering that their purpose is not network but capacity building, these conferences can also be organised via web, to reduce expenses. Alternatively, the conference could be fee-based.

- **Policy conferences:** it is crucial for technical conferences to be supported and complemented by international meetings involving technical health workforce planners and policy makers. Ultimately, transposing and implementing a model requires financial resources that are usually allocated by policy makers. Hence, during these conferences, the experts group and technical health workforce planners would present the benefits of using specific methods in order to raise policy makers' awareness. The main purpose of these conferences would hence be awareness raising and networking. Inevitably, these conferences would have to be face-to-face. They could also take place less frequently than technical conferences (e.g. once a year).

These conferences could be organised by the EU Joint Action consortium. International conferences could in fact focus on the exchange of good practices on planning methods and tools and, at the same time, they could provide a useful platform to disseminate some of the preliminary results of the EU Joint Action. In this sense, there would be no additional costs related to the organisation of mono-thematic conferences on methods and tools.

Alternatively, regional conferences could be organised among neighbouring countries or countries that have an interest in exchanging practices. However, this would not allow containing the costs, as described above. Moreover, the benefit of exchanging practices among a large group of countries might be higher, as countries with different degrees of development, with respect to health workforce planning, would ultimately get involved. Finally, it is more likely that conferences would take place on a frequent basis if they are organised in a systematic and centralised manner at the European level.

Benefits

All stakeholders interviewed as part of the case studies have suggested the organisation of international conferences as a useful scenario for collaboration. They recognise that conferences are an important mean to keep the political discussion going and to ensure that relevant stakeholders are involved in the debate. The case of Lithuania in particular has suggested that international conferences can be instrumental to the development of networks that help foster progress in health workforce planning.

The purpose and benefit of international conferences would hence be three-fold:

- **Raising awareness** on existing good practice models and tools;

- **Supporting the exchange of good practices** across countries; and

- **Creating a sense of purpose** and outlining the benefits of health workforce analysis.

Limits and Risks

Stakeholders have recognised possible risks and limits of this type of collaboration. First of all, international events on heath workforce planning and human resources for health do not take place on a recurrent basis nor are they frequent, as they are usually organised for specific purposes (e.g. presenting the results of FP7 projects). Consequently, international conferences might not constitute a stable and permanent ground for the exchange of practices. Secondly, stakeholders have raised doubts about participation at international conferences.[142] In particular, it appears that international events are frequently attended by the same limited number of international experts and national authorities that are usually already aware of international good practices.

In order to tackle these potential limits, national level stakeholders have called for support from European stakeholders. International conferences on health workforce planning and human resources for health should be organised on a recurrent basis (at least every year) by the EU Joint Action consortium (for the period of duration of the EU Joint Action). Alternatively, and once the EU Joint Action ends, international conferences could be organised and financed as part of the EU Health Programmes.

In conclusion, international conferences, if organised and managed appropriately, would help raise awareness about international good practices in terms of health workforce planning. As a consequence, national authorities would have better access to sophisticated methods to analyse demand and supply of human resources for health. Other forms of collaboration should then be envisaged, in order to ensure that these tools are transposed and used appropriately in different national contexts.

Scenario 5: International Conferences	
WHAT?	1. Technical conferences (twice a year) 2. Policy conferences (once a year)
WHY?	• Awareness raising • Supporting the exchange of good practices • Capacity building • Creating a sense of purpose of data collection
WHO?	1. Health workforce planners 2. Health workforce planners + policy makers

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[142] Interviews with national stakeholders in Italy

WHERE?	• European level or regional level
HOW?	Experts group on planning models (Scenario 4) to organise: 1. Web conferences and attendance fee (cost-reducing measures) 2. Face-to-face conferences

7.2.3   Web Portal on Methods and Tools to Inform Policy

Another instrument to make methods and tools for health workforce planning more accessible is the creation of a web-portal. This portal would collect, describe and give access to methods and tools that constitute good practices and that are already used around the world. It should allow national authorities to download tools for direct use; and it should clarify how, when and why specific methods and tools can and should be used.

Content

In particular, once the experts group (Section 8.2.1) has short-listed good practice models and tools, those should be made accessible on the web-portal. In this sense, the portal should contain:

- **Downloadable versions** of the tools (in different European languages);

- A **description of the tool**, the conceptual model, the methodological approach, the key indicators and the key outputs;

- A **list of countries** in which the tool has been applied, including contact details for the relevant planning authority;

- **Contact details of experts**, who can provide more technical information on the model;

- **Users manuals and guidelines documents**; and

- A **blog** where users can discuss the models and their use.

The web portal should build upon the work of an experts group, as the one proposed and discussed in Scenario 1 (Section 8.2.1). Moreover, it should use the work done by the WHO and its relevant publications (see Section 6.2.1)[143] as a starting point. The inputs of WHO and other international experts should be sought to ensure the accessibility and clarity of the methods and tools presented on the web portal. It could be hosted on the website of the EU Joint Action and subsequently be moved to the website of the European Observatory on Health Workforce Planning, if one is created.

Benefits

The main purpose and benefit of the web portal would be to tackle the limited access to methods and tools for health workforce planning. In this form, it could also contribute to the exchange of good practices across countries and institutions and to capacity building. Once developed, however, the success of the web portal is of course conditional to its use.

Limits and Risks

Unless there is sufficient awareness about its existence, any effort to increase the accessibility of methods and tools would be vain. For this reason, the European Commission could envisage launching campaigns to increase the visibility of the web portal and recommend its use to national workforce planning institutions. The target audience for the web portal should be technical experts or statisticians in charge of developing and running models to balance demand and

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[143] Interviews with national stakeholders in HU.

supply of human resources for health. Moreover, more effective instrument to build capacity and provide trainings at the national level, such as the international conferences discussed in Scenario 5, should also be envisioned.

Scenario 6: Web Portal on Methods and Tools to Inform Policy	
WHAT?	A web-portal with: • Methods and tools (presented in different languages) • List of countries which apply tools, including contact details of authority • Users manuals • Blog & interactive discussion forum
WHY?	• Provide access to methods and tools for planning • Exchange of good practices • Awareness raising • Capacity building
WHERE?	European level
WHO?	• Expert group on methods and tools should be in charge of the portal • Contributions by WHO, OECD (bring in EU-external perspective)
HOW?	Experts identify tools and develop users manuals

7.3   Strategy

As Section 6.4.2 has shown, there remain a number of significant obstacles which hinder the development of an integrated health workforce planning system. These key challenges are summarised in the table below.

Table 39 – Key Challenges in Strategic Planning

Challenges
Lack of integrated and centralised workforce planning system
Low levels of national stakeholder involvement
Low level of strategic engagement of workforce planning institutions
Limited consideration for other dynamics (e.g. organisational, work environment, labour market, etc.)
No horizon scanning
No evaluation of workforce planning outcomes

Given this background, collaboration at the regional, national and international level could have a beneficial impact. Below we present some possible scenarios for collaboration across European countries.

7.3.1   Web Portal on National Health Strategies

As outlined in the section above, health workforce planning can be successful only if underpinned by a broader strategy, which looks at the longer term direction of the health system, including research allocation, system characteristics and workforce policies. Not all European countries recognise the importance of these factors or currently have health workforce strategies in place that address some of the upcoming challenges. Thus, international collaboration and initiatives should aim to increase attention towards these broader aspects and encourage countries to move towards integrated and sustainable health workforce planning.

Content

In order to encourage this shift, during the EU Joint Action participating authorities could be asked to identify internally clear health targets and health status objectives. No particular information is required to develop health workforce strategies; however, some aspects needs to be considered to set SMART (Specific, Measurable, Attainable, Relevant and Time-bound) objectives. The Health Workforce Advocacy Initiative provides guiding principles for the development of national health workforce strategies[144], which help countries define their targets and which facilitate the drafting of health workforce strategies (or health strategies more generally). For instance, some of the principles to be respected are:

- **Comprehensive approach:** a health workforce strategy should cover all aspects (finance, policy, education, partnership, human resource management system, etc.), all cadres (clinical and non-clinical staff) and all sectors;

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[144] Available at http://www.who.int/healthsystems/round9_6.pdf

- **Equality and non-discrimination:** a health workforce strategy should prioritise the equitable distribution of workers, across territory, sectors and cadres; it should meet the needs of all marginalised groups and combat stigma and discrimination;

- **Workplace**: a health workforce strategy should also cover and ensure the health and safety of health workers and ensure that adequate supplies and basic infrastructures are provided;

- **Compensation and support**: a health workforce strategy should look into retention strategies and appropriate remunerations and wages;

- **Education and training**: a health workforce strategy should cover and identify appropriate pre-service education and in-service education needs;

The WHO Guiding Principles for National Health Workforce Strategies also provide guidance with respect to the development and implementation of strategies. In particular, they stress the importance of broad participation in the development and implementation of the strategy and of monitoring and evaluation of progress. On the more practical side, in the UK, the NHS provides a Health and Social Care Workforce Strategy Resource Pack, which helps health and social care organisations to plan, produce and submit their workforce strategies.[145]

Health workforce strategies could then be presented to during the EU Joint Action in the form of reports or strategic plans, which would be made available on EU-wide online platforms, which could be hosted on the EU Joint Action website. As part of this, national authorities and governments would also be required to provide information about their health training pipeline (i.e. supply of human resources for health), on expected changes in recruitment practices and on relevant workforce or labour market policies. The information collected could either be included on the strategic plans or they could be directly reported on the web portal in the form of data or country fiches.

Benefits

The benefit of the web portal is two-fold. First of all, the need to provide strategic plans as part of the EU Joint Action would **persuade European countries to develop health workforce strategies**. In addition, the request to provide specific information and data would encourage them to take into account dynamics such as changes in labour market policies and recruitment practices when forecasting health workforce trends.

Secondly, sharing strategic plan, information and data at European level could facilitate the monitoring and anticipation of migration flows and trends. Recent studies (Prometheus, 2011 and MoHProf, 2011) have concluded that health workforce decisions to migrate are influenced by multiple factors. Most of these factors relate to characteristics of the health system, labour market policies and recruitment practices in destination countries. Having access to health strategies and information on recruitment practices in other countries might allow national authorities to predict changes in migration flows or migration trends. This would undoubtedly facilitate and improve health workforce planning, especially in sending countries.

Risks and Limits

Risks and limits of this scenario for collaboration are related primarily to country resistance to develop and share strategic plans and key information. In particular, some countries might lack the financial and technical capacities to develop such plans and collect such information. Nonetheless, any international or EU level recommendation to include other factors in health

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[145] Available at
http://www.healthcareworkforce.nhs.uk/resources/general/health_and_social_care_workforce_strategy_resource_pack.html

workforce planning would encourage national authorities to at least consider other dynamics and ultimately to make the workforce planning system comprehensive and sustainable. This scenario for collaboration seems to add significant value, with limited costs. It could even be envisaged to extend this type of collaboration to countries outside the EU.

Scenario 7: Web Portal on National Health Workforce Strategies	
WHAT?	Web portal collecting national health workforce strategies, with longer term direction of the health system, including research allocation, system characteristics and workforce policies
WHY?	• Encourage countries to develop comprehensive strategies • Encourage countries to identify clear health targets and health status objectives • Benchmark national practices • Facilitate forecasting of migration flows and trends
WHERE?	• European level or • Regional level
WHO?	Joint Action consortium to collect strategies from national Ministries Possibility to extend beyond EU, with involvement of OECD countries
HOW?	Submission of national health strategies to the Joint Action consortium

7.3.2 Expert Groups on Future Challenges

As outlined in the background section, **national health systems across Europe face very similar challenges, stemming from demographic changes, labour market reforms and economic circumstances (including the financial crisis)**. Human resources for health are directly or indirectly affected by these challenges, as they might influence both future demand and future supply of health workforce. For instance, population ageing is likely to change future health needs; while labour market reforms might lead to the intensification of migration trends and thus affect national supply of health human resources for health.

Objectives

National health workforce planning systems should take future developments and challenges into account in their activities (horizon scanning). They should anticipate how present and future challenges affect health workforce supply and demand and they should take these into consideration when developing workforce strategies. However, approaches to understand these dynamics and their impact on health workforce can be cumbersome and time consuming.

Given that European countries experience very similar challenges, European level collaboration to understand and analyse their impact might be beneficial. In this sense, **targeted experts groups should be created to look at specific challenges and make suggestions to national authorities on their likely impact on the health workforce and on possible solutions to address them.**

Content

The EU Joint Action participants would be responsible for the identification of key challenges and issues to be explored by the experts group. The work carried out by the EU Joint Action, especially with respect to horizon scanning (WP 6) and sustainability of health workforce planning systems (WP 7), could in fact help identify these key challenges.

Explored challenges should be relevant for health workforce planning, in the sense that they should be expected to have an impact on the availability, structure, demand, supply and skill-mix of human

resources for health. The impact of existing challenges on the relation between health care and social care should also be explored. Relevant topics[146] could be, for instance:

- Demographic changes (e.g. population ageing, migration, feminisation of the labour force, etc.);

- Chronic diseases (e.g. diabetes, cancer, depression, dementia, multiple sclerosis, etc);

- Technological developments (e.g. personalised diagnostics, monoclonal antibody in cancer treatment, non-invasive surgery, etc.); and

- The consequences of the financial crisis on the health systems.

Once the EU Joint Action participants have agreed on key challenges to be explored, they or the European Commission could identify and appoint the experts to be involved in the discussion of each topic. Experts groups could be composed of **senior policy officials, sector experts and statisticians from European countries and international organisations (OECD and WHO primarily)**, which are familiar with the issue at hand. During their discussion, the expert groups should aim to develop a full understanding of the issue, its impacts on the health systems and its impacts on human resources for health (both on the demand and on the supply side).

The outcome of the expert group research could then be a **report** summarising the possible impacts of the issue on national health systems and on human resources for health,. The reports could also provide recommendations on how the issues could be tackled or at least taken into consideration in workforce planning. The frequency of experts groups' research projects and their duration would depend on the issue at hand and its complexity.

Benefits

Through its work, the experts groups will be able to understand what the specific impacts of certain challenges would be on the health workforce, its availability, demand, supply and skill-mix. Unless a clear understanding of future challenges is developed, health workforce planners would not be able to pre-empt future issues and adapt the supply of human resources for health accordingly.

This scenario for collaboration would enable health workforce planners to adapt their strategies taking into consideration future challenges. Ultimately, this would allow them to influence decision-making, with respect to health and education systems, in order to ensure the sustainability of health systems.

Analysing and developing solutions for these problems at the European level, with the help of expert groups, would also contain costs, as each European country will not have to develop solutions to these problems individually. In fact, countries are facing similar challenges for which similar solutions can be found at the European and regional level.

In conclusion, the benefit of experts groups on future challenges would be two-fold:

- **Raising awareness** around specific key issues, which are not necessarily workforce driven, but which might affect human resources for health; and

- **Building capacity** to analyse and integrate this issue in health workforce demand and supply forecasts.

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[146] These topics are being explored in countries that are developing horizon scanning capabilities. For instance, the Centre for Workforce Intelligence (CfWI) in the UK has identified a list of 22 major future challenges including ageing, education and training, uncertainty about future models of provision and funding and understanding employer requirements.

Risks and Limits

Like in the case of other scenarios for collaboration which propose expert groups (see Section 8.1.2 and Section 8.2.1), the main limits of this scenario for collaboration are related to the financing of the expert groups. There are two possible alternatives:

a) **The EU Joint Action consortium could be responsible for the financing of the expert groups.** The EU Joint Action partners would be willing to finance this type of collaboration only if the perceived benefits are high enough. For this reason, in the early stages of the EU Joint Action attention should be draw on the fact that common challenges exist across Europe which are likely to influence substantially the demand, supply and skill-mix of the health workforce. Unless these challenges are examined and addressed earlier on, the sustainability of health systems could be undermined. As these challenges are similar across countries, developing an understanding of them at the European or regional level could help countries contain the costs of advance solutions independently.

b) **EU financing should be explored to finance the experts group.** European countries are likely to face very similar challenges in the future, which will affect the supply, demand and skill-mix of their health workforce. For instance, population ageing is a common trend across the Member States; similarly, all Member States will be facing the burden of chronic diseases, the advantages of technologic development and the budget cuts due to the financial crisis. Hence, the analysis of these challenges and possible solutions has a clear European dimension. For this reason, expert groups could be financed under the Health Programmes and technical groups on health workforce challenges could be envisaged as part of EGHI.

Scenario 8: Expert Group on Future Challenges	
WHAT?	Groups of international experts that identify and discuss • Present and future challenges that affect HRH and • Driven by the health system (not workforce specific) (e.g. population ageing, social care, financial crisis, chronic diseases)
WHY?	• Raising awareness around specific key issues; • Building capacity to analyse and integrate this issue in health workforce planning
WHERE?	• European level, but possibly with regional focus
WHO?	Expert groups including academics, senior policy makers, sector experts and statisticians, also from OECD/WHO
HOW?	• Joint Action consortium to identify issues and select relevant experts • Experts to research the issue and write reports with recommendations

7.3.3   Common Training for Health Workforce Planners

Health workforce planning is a complex discipline, which is influenced by multiple factors and which should be formulated through a collaborative process. Health workforce planners should have knowledge about multiple different fields (health, education and training, labour market, etc.), and they should be able to integrate them in a comprehensive analysis framework. At the same time, they should be familiar with statistics and economics to be able to collect and analyse the most relevant data. In conclusion, becoming a health workforce planner seems to require a substantial amount of training.

Despite this, only few European countries provide specific training for health workforce planners. As discussed in Section 6.2.2, universities across Europe offer general health human resource management courses, but do not offer specific trainings for health workforce planners, during which aspects such as data requirements, modelling techniques and future challenges are discussed. For this reason, experts have suggested that an **EU wide training for health workforce planners** could be envisioned, as part of collaboration across European countries.

Content

The content of this EU wide health workforce planning course could be discussed during the EU Joint Action and developed in collaboration with the **European Centre for the Development of Vocational Training (CEDEFOP).** The centre is a decentralised European agency that promotes lifelong learning by supporting the European Commission, Member States and social partners in designing and implementing policies vocational education and training systems, policies, research and practice[147]. One of the objectives of the centre is to encourage joint approaches to vocational education and training problems and to provide a forum for exchange of ideas.

The course could be run by an independent training provider over a 1-year period, at the end of which the trainee would receive an appropriate recognised qualification. It could be funded with the support of the **European Social Fund (ESF),** which has set investment in human capital as one of its priorities from 2007 to 2013 and supports reforms in training systems that make people more employable, and most importantly, reforms that update the skills of the educators and trainers. It also supports networking between higher education institutions, research and technology centres and enterprises[148].

Benefits

The main benefit of such collaboration would of course be capacity building on health workforce planning. This could help address one of the key issues identified across the three key dimensions of health workforce planning, namely the lack of technical capacities to carry out the monitoring, analysis and strategic planning of human resources for health. In addition, the development of a training programme could also support the sustainability of the EU Joint Action, as most of the outcomes of the collaboration could be fed into the learning material for health workforce planners.

Risks and Limits

The main risk to be highlighted is related to the financing of this training. Designing and implementing European wide training for health workforce planners can be very resource intense. For this reason, it appears that it would be crucial to exploit synergies and draw on the expertise of CEDEFOP, which provides guidance on training policies and monitors and identifies good practices. Also, funding could be obtained from the European Social Fund. The development of common specific training for health workforce planners does in fact have a European dimension: as EU Member States are increasingly integrated and health systems face similar challenges, health workforce planners should be provided with similar skills and should employ similar techniques to forecast future health needs.

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[147] http://europa.eu/agencies/regulatory_agencies_bodies/policy_agencies/cedefop/index_en.htm
[148] http://ec.europa.eu/esf/main.jsp?catId=51&langId=en

Scenario 9: Common Training for Health Workforce Planners	
WHAT?	• Training courses of up to 1 year for health workforce planners • Learning sets
WHY?	• Capacity building on health workforce planning • Ensuring sustainability of health workforce planning
WHERE?	• European level
WHO?	• Independent training providers
HOW?	• Developed in collaboration with CEDEFOP • Supported by European Social Fund

7.4   Ensuring the Sustainability of the Scenarios for Collaboration

Experts have also stressed the need to ensure the sustainability of this collaboration. **More specific platforms should be envisaged in order to ensure sustainability beyond the end of the EU Joint Action (2013-2015) and in order to maximise its value.** For this reason, it appears that some stable institutional structures and platforms for collaboration, which operate across the key dimensions of health workforce planning, would be beneficial.

A European Observatory on Health Workforce Planning could play a key coordinating and support role. It could facilitate data sharing, support the exchange of good practices on health workforce planning methodology and assist Member States in planning future workforce needs and capacity and in developing long-term, comprehensive health workforce strategies. More specifically, the Observatory could build and manage web portals, organise conferences, identify and manage a network of experts and stakeholders, which could represent the scientific pool for specific experts groups.

The setting up of a Europe wide Observatory on Health Workforce Planning has been proposed in the Green Paper on the European Workforce for Health[149], it has been supported by 60% of respondents to the open consultation on the Green Paper (European Commission, 2009) and it has also been suggested by multiple national stakeholders during the case studies carried out as part of this feasibility study[150].

There are however substantial limits and challenges to be faced when proposing the creation of such Europe wide Observatory. A European Observatory on Health Workforce Planning needs political backing from the Member States, based on a robust cost-benefit analysis and impact assessment. It requires a substantial amount of resources at a time of severe cuts in public spending. Multiple national authorities would need to agree to allocate financial and human resources to create and operate such an institution. For instance, the WHO European Observatory on Health Systems and Policies is the result of a partnership among almost 20 organisations, among which international institutions, national and regional governments.[151] It employs a team of 23 researchers and managers from those 20 organisations. Its budget was US$10.7 million (€8.1 million)[152] in the biennium 2008-2009[153]. In 2012, other European data collection agencies of comparable size have a budget between €15 million (European Agency for Safety and Health at Work with staff of 44[154], and the European Monitoring Centre for Drugs and Drug Addiction with a staff of 90[155]) and €20 million (Eurofound[156]).

In the current economic circumstances, financial and human resources available might be limited. Thus, in order to generate stakeholders buy-in and consequently collect the necessary resources, the Observatory should be assigned a clear mission, specific competencies and SMART objectives,

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[149] COM(2008) 725

[150] Interviews with Slovenia and Hungary in particular

[151] World Health Organization Regional Office for Europe, the Governments of Belgium, Finland, Ireland, the Netherlands, Norway, Slovenia, Spain, Sweden, and the Veneto Region of Italy, The European Commission, the European Investment Bank, the World Bank, UNCAM (French National Union of Health Insurance Funds), the London School of Economics and Political Science (LSE), and the London School of Hygiene & Tropical Medicine (LSHTM).

[152] The budget of the WHO European Observatory on Health Workforce Planning has been increasing constantly since the biennium 2002-2003 when it amounted to US$ 2.8 million (€2.1 million) up to the biennium 2008-2009 when the total budget became US$ 10.7 million (€8.1 million).

[153] More recent information on the Observatory's budget is not publicly available.

[154] http://osha.europa.eu/en/publications/work_programmes/strategy2009-2013

[155] http://www.emcdda.europa.eu/

[156] http://www.eurofound.europa.eu/about/faq/index.htm#Who

which should be instrumental to achieve the sustainability of not only European collaboration, but also national health systems. In this sense, the Observatory should provide national health workforce planners with the data, tools and training necessary to meet present and future health needs.

In this sense, the mission of the Observatory should provide national health workforce planners with the data, tools and training necessary to meet present and future health needs. Some of the tasks performed by the Observatory in order to deliver this mission could include:

- **Capacity building** among health workforce planners on:
    - Data collection
    - Data analysis
    - Horizon scanning

- **Awareness raising** among policy makers and health workforce planners on:
    - Key challenges for the sustainability and availability of health care
    - Key role of health workforce planning
    - Key indicators of health workforce planning
    - Good practices in terms of health workforce analysis

- **Improving accessibility** to:
    - Human resources for health data
    - Methods and tools for health workforce planning

- **Supporting the exchange of good practices** on:
    - Health workforce monitoring
    - Health workforce analysis
    - Health workforce strategic planning

In the next paragraphs we present some of the **possible tools that a European Observatory on Health Workforce Planning could use to perform its tasks**.

1. Experts Groups

If created, the European Observatory could explore the possibility to identify and establish short-term or long-term experts groups with specific focus, such as those proposed and discussed in Scenario 2, 4 and 8 above. Examples of relevant expert groups, based on the analysis carried out in this report, would include:

- An expert group on **definitions and indicators** to support health workforce monitoring;

- An expert group on health workforce **methods and tools**, to support the analysis of demand and supply of human resources for health; and

- An expert group on **specific challenges** facing health systems and health workforce in particular, to ensure a more comprehensive approach to strategic planning.

The outcomes of the experts groups should be the publication of reports summarising the result of their work and the implementation workshops involving relevant stakeholders, during which the experts provide more practical explanations of their recommendations.

The composition of the experts groups would vary depending on the issues at hand, to ensure that it is composed of stakeholders with the most relevant skill set and expertise. Generally, they

could draw on a pool of experts from national level workforce planning institutions and data collection institutions and from international institutions like WHO, OECD, Eurostat and universities with internationally renowned publications in the field of health workforce planning. Experts groups should also involve experts from professional associations, who might be able to contribute practical views and solutions to health workforce planning challenges.

The composition and organisation of the expert group could be drawn on the experiences of other existing expert groups, like the OECD Expert Group on Health Workforce Planning and Management, whose objective is to advise the OECD work on human resources in health. Twenty three countries are represented in the expert group and its members are typically in charge of human resource planning in the different countries. The OECD Expert Group however meets only once a year to discuss various topics related to health workforce planning; the Expert Groups proposed in this study should instead meet more often and have more specific competencies and objectives.

2. Web Portal

Many of the shortcomings of national health workforce planning systems can be alleviated through the sharing of data, information and good practices across countries. For this reason, in created, the European Observatory could explore the creation of an EU wide web portal through which data and information can be easily shared. The web portal should be easily accessible and its development should be supported by EU level communication campaigns or recommendations to ensure its visibility.

As the web portal aims to address multiple challenges, it should contain various information and sections, such as those proposed and described in Scenario 1, 6 and 7 above, including:

- A common **minimum mobility dataset**, to be developed and created on the basis of common indicators identified at EU level and implemented at national level;

- A **toolbox** with health workforce planning methodologies and tools, which are considered good practices;

- A section reporting **national health strategies**; and

- **Country fiches** reporting national forecasts on training pipelines, changes in recruitment practices and future labour market reforms.

In order to be successful and useful the web portal should be frequently updated. For this reason, it should be managed by a specific institution or possibly by a future European Observatory on Health Workforce Planning. Every country would then identify an authority responsible to relay data and information requested on the web portal. The details of this national contact point should be available on the web portal itself.

7.5 Health Workforce Forecasting at the European level

As discussed in Section 7.0, there are mainly two ways in which European collaboration could help address the EU-wide health workforce crisis. In the previous chapters, we have discussed how European collaboration can provide support to national authorities, in order to improve national health workforce systems, through any possible available tool and relying on existing initiatives. In this chapter instead we discuss how **collaboration can aim at creating tools, methodologies, common definitions and indicators to carry out one-off exercises on health workforce forecasting at the European level.**

The main rationale for having EU-wide forecasting exercises would be **to provide national authorities with the data, forecasts and analyses necessary for them to understand whether supply of human resources for health is sufficient to meet future health needs.** Thus, if shortages are found through this forecasting exercise, national authorities can address them accordingly.

While the modelling of present and future supply and demand of human resources for health can be done at the national level, it appears that collecting and analysing data at the EU level could also be beneficial. In particular, the added value of establishing a European-wide model is two-fold:

- **As highlighted elsewhere in the report, one of the key aspects affecting the supply of human resources for health is migration.** There are still substantial data collection and analysis problems associated with migration in the health workforce. Barring the Scandinavian countries, most countries cannot accurately pick up in- and outflows to and from the health workforce. A European-wide model would include all intra-EU migration and thus depict a more accurate picture of the EU health workforce. However, it should be kept in mind that mobility issues are only relevant in a limited number of countries, as outlined elsewhere in the report (see Section 5).

- **Many countries do not conduct health workforce planning at all, despite well-documented health workforce problems.** For these countries, a European-wide analysis would provide a better idea of the future of both the European health workforce and their own workforce. It should be taken into consideration here, though, whether implementing European-level health workforce forecasting or whether encouraging and supporting health workforce planning at the national level will ultimately create more added value to individual countries.

7.5.1 Feasibility of Health Workforce Forecasting Model at the European level

This section seeks to provide a brief overview of the feasibility of developing a health workforce forecasting model at the European level, based primarily on data availability. In particular, the sections below present key suggestions on the design of an EU-wide health workforce forecasting model to supplement and strengthen the existing methodology developed by the European Commission.[157] The data sources to be utilised within such a model are outlined, followed by a discussion of the suggested design of an EU-wide model. This discussion incorporates the four main

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[157] The European Commission has in fact conducted an estimation of the future gap between health workforce demand and supply, which found that demand was likely to exceed supply by nearly 1 million workers by 2020 (13.8% of the workforce). As outlined in Section 2.1, this figure has been questioned by some stakeholders.

components of the model: current supply and current demand, and how these are projected forwards to obtain estimates of future supply and future demand.

A European-level health workforce planning model should be based on:

- **International Data Sources**, primarily those obtaining their data from the Joint Questionnaire: WHO, OECD, Eurostat;

- **National Data Sources,** as long as they are comparable;

- **Robust and informed assumptions**, based on a variety of sources. These can include population-based extrapolations (i.e. assuming that data available in some countries can be extrapolated to others), model-based estimations (i.e. if exact data are not available, they can be estimated within another model, using a host of other indicators) or stakeholder opinions (i.e. taking the opinions of experts in the field on board), are necessary due to data gaps and a lack of total oversight.

The conceptual design of any forward-looking health workforce planning model consists of gaining an accurate picture of the current supply and demand, then projecting the development of both demand and supply forward to obtain a reasonable estimate of the future. A subsequent gap analysis can allow policy intervention to address any problems predicted through this methodology. This design is summarised in the figure below

Figure 30 - Design of a forward looking health workforce planning model
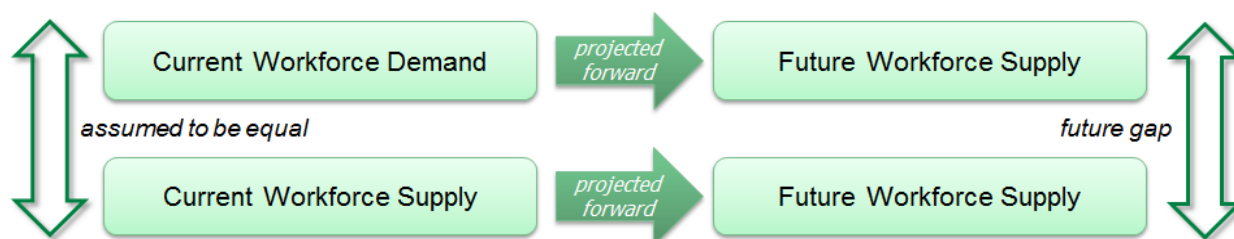
The most robust way in which to conduct this is to use a **probabilistic model**, taking a number of possible scenarios into account. A probabilistic model requires sufficient data to provide a detailed overview of the current situation, in order to forecast the future situation. The required data, the availability of this data and the possible limitations are analysed below, along the dimensions of current supply, future supply, current demand and future demand.

Current Supply

Defining current workforce supply is relatively straightforward. The necessary factor that must be addressed to assess current workforce supply is **how many health workforce professionals are employed across all European countries**.

As outlined above, the number of total health workforce employees is given by national sources in seven countries. For all other countries, a manual sum of individual profession categories is attainable. Due to differing methodologies across countries (outlined above), total health sector data from national sources may not necessarily be comparable, but detailed data for a number of professions (physicians, nurses, midwives, pharmacists, etc.) are available from international sources drawing information from the Joint Questionnaire. Any remaining data gaps for some professions could be filled with certain assumptions and extrapolations.

Estimating the supply of the total European health workforce, incorporating all professions, is likely to be difficult, because of the limited comparability of national sources and data gaps. However, because of extensive existent international data sources on the number of employees in certain healthcare professions, estimating current workforce supply for these professions is highly feasible.

Future Supply

In order to build a reliable model that predicts how health workforce supply will develop in future, the following questions should, at the very least, be addressed:

1. When healthcare professionals enter the workforce (age at entry);

2. How long healthcare professionals remain active;

3. How many people from each birth cohort become healthcare professionals;

4. The percentage of registered / qualified healthcare professionals who practise;

5. How the productivity of healthcare professionals develops over time.

Many of these data are available from a number of sources:

1. As outlined elsewhere in the report, when considering **how many professionals enter the workforce,** graduation data for physicians are available through national sources, for many countries. Analysing these time series data would allow an accurate estimation of average physician entry age. For other professions, data are less widely available and the routes into professions are less straightforward than with physicians. However, for nurses, midwives and pharmacists, there are limited data available.

2. Considering **how long professionals remain active** requires an estimation of the average age at which a physician leaves the workforce, for which there are data available (outlined elsewhere in this report) for physicians and nurses, across many countries. Analysing this over a number of years, rather than in just one year, allows for recognition of a trend that can be used to forecast future trends. For other professions and countries, a limited amount of assumptions is required.

3. Eurostat has data on the **proportion of each cohort joining certain healthcare professions**. If analysed over a time series, the trend can be used to forecast the future trend, as above.

4. For physicians, there are data from Joint Questionnaire sources and national sources considering the **percentage of licensed physicians actually practising**. For other professions, this is less clear-cut, e.g. because licensed pharmacists have many more career choices to choose from than licensed physicians. Nevertheless, sufficient data are available to gain a good idea of how many professionals actually practise, across many countries.

5. An assumption of **healthcare professional productivity** remaining static over time is an easy one to make, but potentially skews any model. If healthcare professionals become more productive over time due to epidemiological or technological improvements, demand may not exceed supply by as much as initially assumed. Whilst labour productivity of healthcare professionals is very difficult to estimate, and has not been studied within the scope of this report, it would be advisable to conduct a thorough literature review to obtain knowledge of whether it is possible to take this factor into account.

Predicting how the current supply of human resources for health will develop over time requires knowledge of a number of factors which affect supply, outlined above. In terms of the practical feasibility of the model, there are two ways in which future supply can be estimated:

- Using an existing methodology (e.g. Schulz 2005) and as few data sources as possible. The advantage to this is that it is 'single-source', i.e. overlapping data sources, with different methodologies and assumptions do not skew the prediction. The disadvantage is that this usually means restricting analysis to a few countries with excellent data and extrapolating across.

- Using as much data as possible and a de novo technique of projecting into the future. The advantage to this is the larger geographical coverage, but the disadvantage is that different sources may include different definitions.

Given the amount of data currently available, as outlined above, there is some scope for using a de novo model and predicting into the future, at least for some professions. Using the data outlined in this report, the existing Commission methodology can be supplemented and improved upon, if restructured to account for a probabilistic model.

Current Demand

Health workforce demand is more difficult to quantify than workforce supply, because patients do not directly demand healthcare professionals – they demand services. As such, some measure of services must proxy for overall workforce demand. If workforce demand is to be projected into the future, the implicit assumption must usually be made that current workforce demand matches current workforce supply – because a certain number of health professionals are currently fulfilling the service needs of the population. The key factor to be addressed here is **how many healthcare professionals are currently demanded**.

How many healthcare professionals are currently demanded can be proxied for through a number of measures, for which there are European-wide data available. Schulz (2005) looks at the amount of hospital beds utilised for some EU countries, which means a European-wide analysis requires extrapolation. In the interests of 'single-sourcing', this is the methodology the current Commission estimates use. Alternative measures, available for a wider range of countries, include the number of GP visits, the number of patient episodes, the number of total hospital beds, etc. These are available from Joint Questionnaire sources.

Calculating health workforce demand is inherently more difficult than supply, but there are a number of reliable measures which allow a good picture of this. These have not been studied in detail within this report, but are contained within many of the sources highlighted elsewhere. Modelling current demand is feasible given the available data sources.

Future Demand

Projecting future demand for the health workforce requires robust forecasting techniques for the demand proxies outlined above. Two suggested questions, in this context, could be answered:

- How epidemiological necessities will develop over time

- How many old-age people will be alive in the future

How **epidemiological necessities will develop over time** cannot be addressed using national or international data sets, but rather must be based on studies looking at how population needs will

develop due to disease development. A literature review here would be advisable, with the resulting proportionate estimates applied to the demand proxies above (e.g. if it is predicted that the disease burden will increase by a certain percentage, this will feed into a certain increase in demand).

People of **older age** generally utilise more healthcare services than those of middle-age, which means that any gains in life expectancy or gains in the amount of older people will feed into how many professionals are demanded. The Commission methodology assumes that every gain in life expectancy is spent in ill health, whilst limited stakeholder consultation on our part has suggested that this figure may be slightly lower, at around 80%. Further research into this area would provide a more accurate basis upon which to base any methodological look at the development of future demand. EU Ageing Reports[158] discuss some of the issues related to the impact of expanded life expectancy on health expenditure, and consider various scenarios with different assumptions. Much of this information, or consultation with the Ageing Working Group, would be beneficial for determining a common approach to assume an accurate estimate of life gains spent in ill health.

Of the four dimensions contained within a suggested workforce model, future demand is the most difficult to estimate. Whilst a sufficient amount of data are available to gain a robust estimate of future demand, depending on which proxies for demand are used, further research and consultation with technical experts in this area should be conducted. Projecting future demand is feasible.

The box below summarises a feasible design of an EU wide health workforce planning model, to carry out the monitoring and analysis of human resources for health across Europe. The purpose of this model would be to provide relevant information and estimates to the Member States.

Box – A European-level Model

As the above discussion of data issues outlines, the exact design of a European-level model largely depends upon further research into its feasibility and added value, as well as on the further development of cooperation on data collection and analysis. Nevertheless, it can be concluded that a possible European-level model should include:

- Both demand- and supply-side projection, as well as a gap analysis;

- A realistic and useful projection into the future, likely of between 5 and 10 years[159];

- Incorporation of as many professions as possible, likely physicians, nurses, midwives and pharmacists;

- Probabilistic analysis, out-of-sample forecast testing and the incorporation of multiple scenarios[160];

- Incorporation of as much of the available data as possible, though acknowledging the problems associated with data from multiple sources; and

- A justifiable and realistic set of assumptions, based on the best available knowledge of demand and supply indicators.

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[158] e.g. 2012 Ageing Report, http://ec.europa.eu/economy_finance/publications/european_economy/2011/pdf/ee-2011-4_en.pdf
[159] Based on current practice amongst most health workforce planning Member States.
[160] In order to ensure the statistical validity of the estimates.