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Health Committee**

**DELSA/ELSA/WP2/HEA(2007)1/REV1  
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**HOW CAN OECD COUNTRIES ACHIEVE A SUSTAINABLE HEALTH WORKFORCE?  
THE ROLE OF EDUCATION, INTERNATIONAL MIGRATION AND HEALTH WORKFORCE  
MANAGEMENT POLICIES.**

**To be held on November 16, 2007**

Contact: Jean-Pierre Garson; email: [jean-pierre.garson@oecd.org](mailto:jean-pierre.garson@oecd.org); tel: +33 1 45 24 91 74;  
Peter Scherer; email: [peter.scherer@oecd.org](mailto:peter.scherer@oecd.org); tel: +33 1 45 24 91 98.

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## NOTE BY THE SECRETARIAT

1. This paper examines the relationship between the migration of health workers, both within the OECD area, and between the rest of the world and the OECD area, and health workforce policies in OECD countries.

2. It represents one of the main outputs of a project on health workforce policies and international migration which has been undertaken jointly by the OECD and the WHO starting in 2005. Within the OECD, the work has been undertaken jointly by the Health Division and by the Non-member Economies and International Migration Division, of the Directorate for Employment, Labour and Social Affairs.

3. This paper will serve as an input to the discussion at the upcoming High-Level Forum of Health Workforce Policies and International Migration, which will take place in Geneva on 18-19 March 2008 (see document DELSA/ELSA/WP2/HEA(2007)2). In this respect, this document summarises the results of a first document on health workforce migration, published as a chapter in the 2007 Edition of the International Migration Outlook and discusses the interaction between migration and other health workforce policies. The paper will be finalised in light of the discussion at the 16 November joint meeting of the Health Committee and of the Working Party on Migration, and of written comments received before December 14. The paper will be released as part of a High-Level Meeting conference volume, to be published by the OECD in the first half of 2008.

4. Delegates to the joint meeting of the Health Committee and the Working Party on Migration are invited to:

- COMMENT on:
  - whether the paper accurately conveys the recent history of migration and workforce policies from the point of view of their countries;
  - what are the implications of migration policies for the health sector?
  - whether the paper identifies appropriately the options facing OECD countries in tackling anticipated workforce shortages, i.e., what should be the respective contributions of migration, training and other health workforce policies?
  - what sort of future international information sharing and co-operation, if any, would be appropriate in relation to anticipated future, global health workforce shortages?
  - How could (or should) OECD countries help low-income source countries cope with their health workforce shortages?
- NOTE: the **14 December** deadline for sending written comments on the paper. How can OECD countries achieve a sustainable health workforce? The role of education, migration and health workforce management policies.

## ACKNOWLEDGEMENTS

5. The OECD project on International Migration and Health Workforce Policies has been funded partly by regular contributions from member countries of the OECD. Additional voluntary contributions to the project were made by the following member countries: Australia, Canada, New Zealand and Switzerland. Additional ‘in kind’ support was provided by Switzerland, which funded the attachment of a WHO officer to work with the OECD on this project.

6. The Health Workforce and International Migration project has also been co-financed by a grant provided by the Directorate General for Health and Consumer Protection of the European Commission. Nonetheless, the views expressed in this Report should not be taken to reflect the official position of the European Union.



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## **Introduction**

7. OECD countries may face an unprecedented challenge in responding to the demand for health workers over the next 20 years. This challenge arises in a world which is already characterised by significant international migration of health workers, both across OECD countries and between some developing countries and the OECD area. Whether these migration flows increase or decrease over the next 20 years is likely to depend largely on what combination of human resource and migration policies is adopted by each OECD country.

8. Raising domestic training rates in OECD countries could contribute to filling the gap and would reduce the 'pull factors' on migration. However, the relevant age cohorts for trainees are set to decline in some OECD countries and the duration of medical training may limit the potential impact of increasing training in the short run. Migration may have a particular role to play in managing temporary disequilibria or addressing regional imbalances. Other domestic human resource policies could also contribute to meeting the increasing demand for health workers. Improving retention, adapting skill mix or making better use of people with foreign qualifications might, to some extent, help to match the supply to the demand for health workers. In this context, good practices need to be identified and their transferability evaluated.

9. In any case, it is important to note that the management of health human resources cannot be considered in isolation, due to the increasing interdependency between countries in matching supply to demand through migration, and to the equity concerns which exist with regard to lower income countries, some of which face severe shortages of doctors and nurses. This suggests that there might be a case for better international co-operation.

10. This document analyses migration and training of health workers in the context of other workforce policies. It starts with a review of the recent and expected evolution in the density of doctors and nurses. Section 2 analyses education and migration policies and their interactions, in light of past trends. The following section reviews other health workforce policies aiming at an efficient use of the available health resources. Challenges related to international equity and interdependency dimensions are discussed in section 4. The last section concludes by offering options for addressing future health workforce needs.

## **Main findings**

- The average growth in physician and nurse density in the OECD area slowed sharply in the past 15 years compared with the previous 15 years. The trends for physician were accompanied by changes in lifetime hours worked, growing feminisation of the workforce and increasing specialisation.
- Circa 2000, several OECD countries reported shortages of doctors and nurses and published projections suggesting future shortages of health workers.
- UN population projections suggest that younger age cohorts will shrink in many OECD countries over the next 20 years, possibly reducing the pool from which to train and recruit.
- Despite differences in their approach to medical and nursing education, most OECD countries exercise some form of control over student intakes, either by capping the total number of places or by limiting financial support to medical education.
- Intake to medical schools has followed a U-shape curve in many OECD countries, with a downswing in the 1980s and early 1990s and an upswing around the end of the last decade.

Because of the long delay in training, the upswing has only recently become identifiable in graduation rates in a few countries.

- The contribution of foreign-trained doctors to changes in stocks of physicians is significant and increasing over time in many OECD countries. In several OECD countries, immigration jumped sharply at about the time that shortages were identified at the end of the 1990s.
- Relying on migration and training policies may not be sufficient or efficient to address health workforce shortages. Policies aiming at a better use of the available health workforce are also called for.
- A combination of policies should be considered including: i) improving retention (particularly through better workforce organisation and management policies, in particular in remote and rural areas); ii) enhancing integration in the health workforce (e.g., by attracting back health professionals who have left the health workforce and improving the procedures for recognising and as necessary supplementing foreign qualifications of immigrant health professionals); iii) developing more efficient skill mix (e.g., by developing the role of advanced practice nurses and physicians' assistants); iv) improving productivity (e.g., through linking payment to performance); and v) having recourse to migration. Different countries are likely to choose different mixes of these policies, depending, among other things, on their migration history.
- Increasing international mobility and the emergence of shortages of health professionals in many OECD countries have raised concerns about international interdependency in the management of health human resources. There is indeed a risk for shortages to be exported within and beyond the OECD area, putting excessive burden on the poorest countries in the world. This risk exists also in the case that OECD countries pull health workers from a limited number of origin countries which offer training programmes aimed at supplying health professionals to foreign countries.
- Even if the global health workforce shortage goes far beyond the migration issue, it raises some equity concerns. However, strategies and practices implemented at both national and international raise implementation challenges.
- There seems to be a strong case for future international communication about health workforce policy and planning across countries with a view to diagnosing potential imbalances between demand and supply in the global market for health workers and improving the prospects for international co-ordination.

## **1. Health workforce demographics: an overview**

11. This section presents data on the health workforces in OECD countries, including cross-country variation, past trends, and projections over the next 20 years.

### ***1.1 Cross country variations and evolution of physician and nurse densities***

12. There is a wide variation in the reported density of both doctors and nurses across OECD countries. Chart 1 shows that in the case of doctors, the range in the ratio of practising physicians per 1000 population was over threefold, from 1.5 in Turkey to 4.9 in Greece in 2005. The average density of the OECD area was 3.0. Chart 2 shows that in the case of nurses, the reported range in density was more than eightfold, from 1.8 practising nurses per 1000 population in Turkey to 15.4 in Norway in 2005. The average density of the OECD area was 8.9.<sup>1</sup>

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<sup>1</sup> There are some limitations to cross-country comparability of data on physicians. In many countries, the numbers include interns and residents. The numbers are based on head counts, except in Norway which reported full-time

13. Chart 3 shows that in the past 3 decades, there has been a prolonged increase in physician density in all OECD countries for which data are available. In most OECD countries, physician density grew more quickly in the 15 years from 1975 to 1990, at an average rate just over 3.0% per annum, than in the 15 years from 1990 to 2005, when the average was 1.6% per annum. Chart 4 shows that in the case of nurses, average density also grew more quickly, on average, in the earlier period (1975-1990), at 2.6 % per annum, than in the later period (1990-2005) when it grew at 1.6% per annum.

14. Over the past two to three decades, the growth in physician headcounts has been influenced by a combination of factors including demand changes (themselves driven by factors such as rising incomes, changing medical technology, ageing of the population and substitution by other health workers) and supply factors (such as controls on entry to medical schools, immigration and emigration and changes in physician productivity).

15. In general, the average growth in physician density has been slower than the average growth in real health expenditure per capita in the OECD area but faster than the likely effect of the ageing of the population on health expenditure<sup>2</sup>, except in some countries where significant ageing is occurring in the patient population (Chart 5).

16. Changes in hours worked per physician may have played a role in raising the demand for doctors in terms of headcount. Anecdotally, young physicians today are often said to wish to work shorter hours than their predecessors did, even if little evidence for changes in average working hours per physician was found in a selection of European countries between 1992 and 2000, using the Eurostat Labour Force Survey (OECD, 2006). On the other hand, in Australia average weekly working hours for clinicians fell from 48 in 1997 to 44.6 in 2003, a decline of about 7% (Lennon, 2005). And in Canada, a study for the city of Winnipeg suggested that family physicians in the age group 30-49 years provided 20% less patient visits per year than their same-age peers did 10 years previously (although older physicians provided 33% more visits than their same-age peers a decade earlier) (Watson, D.E *et al*, 2004). This trend may be partly offset for by the ageing of the workforce.

17. Growing feminisation of the physician workforce and growing part time working is also likely to have reduced lifetime hours worked. On average, female physicians work fewer weekly hours than male physicians in many OECD countries (OECD, 2006). Also, on average, female physicians have shorter working lives than male physicians. Chart 6 shows changes in the female proportion of the physician workforce in OECD countries in 1990 and 2005. On average, the proportion of females in the physician workforce increased by around 30% - from 28.7% to 38.3% over this period.

18. The health workforce in OECD countries is ageing as the 'baby boom' generation of health workers begins to reach retirement age. Charts 1a and 1b in Annex 1 show for a selection of OECD countries how the age- distributions of health workers have (in most cases) been shifting to the right in the last decade, or so. This means not only that the average age of health workers has been increasing, but also that a growing proportion of health workers are now in their 50s or early 60s and may be expected to retire in the next decade or so.

19. Increasing specialisation in the medical profession may also have raised the demand for doctors. The ratio of specialists to general practitioners rose from 1.5 to 2.0 between 1990 and 2005 on average among OECD countries. Growing specialisation, which goes hand in hand with expanding technology, encourages additional activity and referrals and may require doctors in large numbers where 24-hour cover of the full range of acute specialties is required in hospitals.

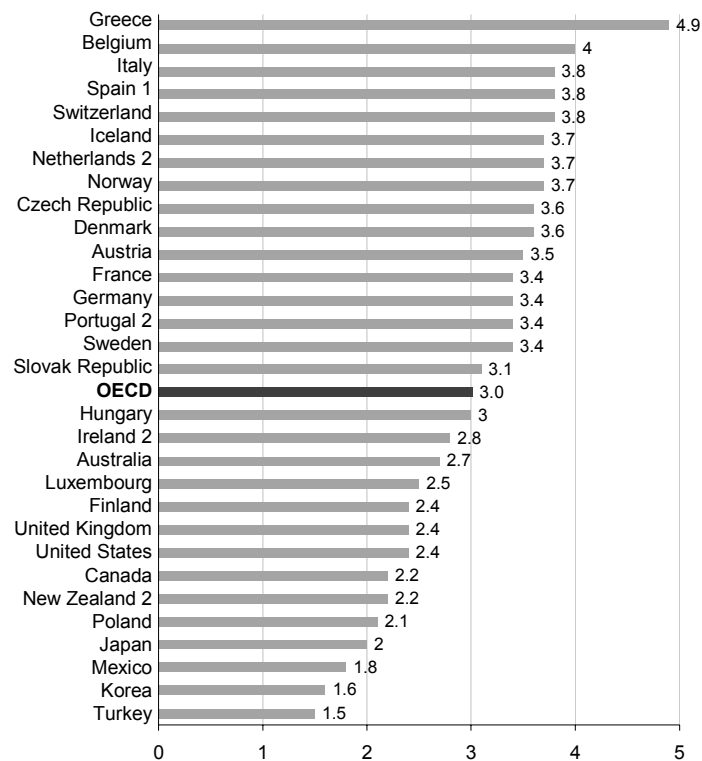
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equivalents prior to 2002. Ireland and the Netherlands report the number of all physicians entitled to practice. Data for Spain include dentists and stomatologists (over-estimation) (Health at A Glance, 2007).

<sup>2</sup> The effect of ageing of the population on the rate of increase of public spending on health care has been estimated at 0.3% per annum between 1981 and 2002 (OECD, 2006)



Chart 1 Practising physicians per 1 000 population, 2005 (or latest year available)

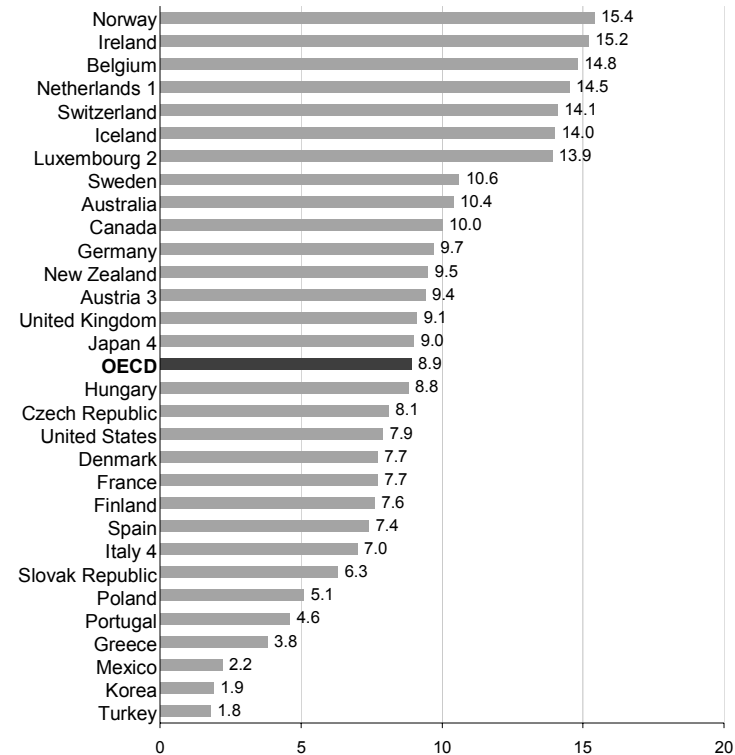


1. Data for Spain include dentists and stomatologists.

2. Ireland, the Netherlands, New Zealand and Portugal provide the number of all physicians entitled to practise rather than only those practising.

Source: Health at a Glance 2007

Chart 2 Practising nurses per 1 000 population, 2005 (or latest year available)



1. The Netherlands reports all nurses entitled to practise rather than those practising only.

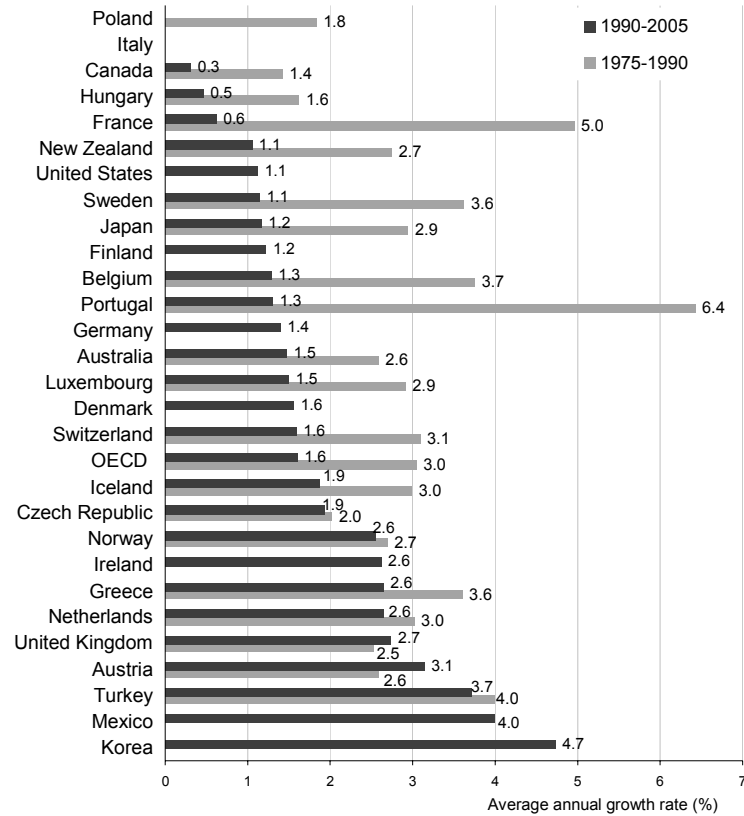
2. Luxembourg includes nursing aids.

3. Austria reports only nurses employed in hospitals.

4. The calculation of average annual growth rate for Japan and Italy is based on a slightly different time period to avoid break in series resulting from methodological changes.

Source: Health at a Glance 2007

Chart 3 Change in practising physician density, 1975-1990 and 1990-2005

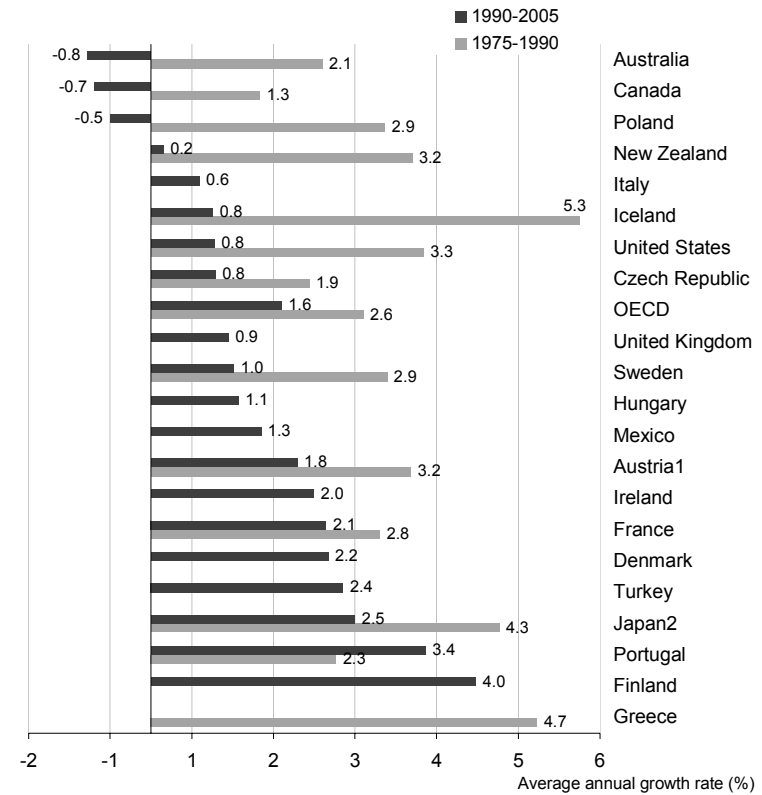


Note: Ireland, the Netherlands, New Zealand and Portugal provide the number of all physicians entitled to practise rather than only those practising.

OECD consistent average is calculated for 20 countries

Source: OECD Health Data 2007

Chart 4 Change in nurses density, 1975-1990 and 1990-2005



1. Austria reports only nurses employed in hospitals

2. The calculation of average annual growth rate for Japan and Italy is based on a slightly different time period to avoid break in series resulting from methodological changes.

Note: OECD consistent average is calculated for 12 countries

Source: OECD Health data 2007

Charts 5. Real GDP per capita and practising physicians density, 1975 to 2005 in selected OECD countries

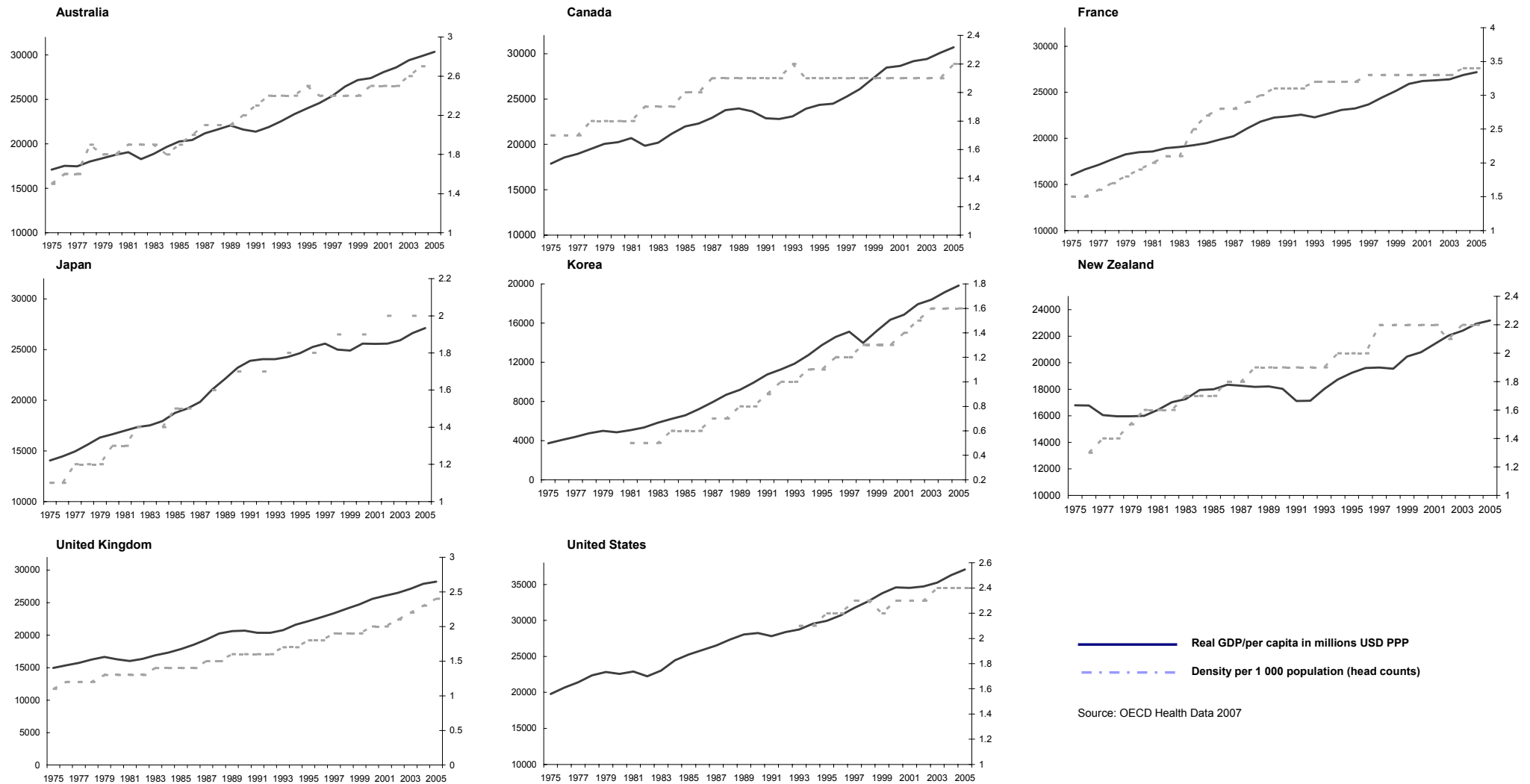
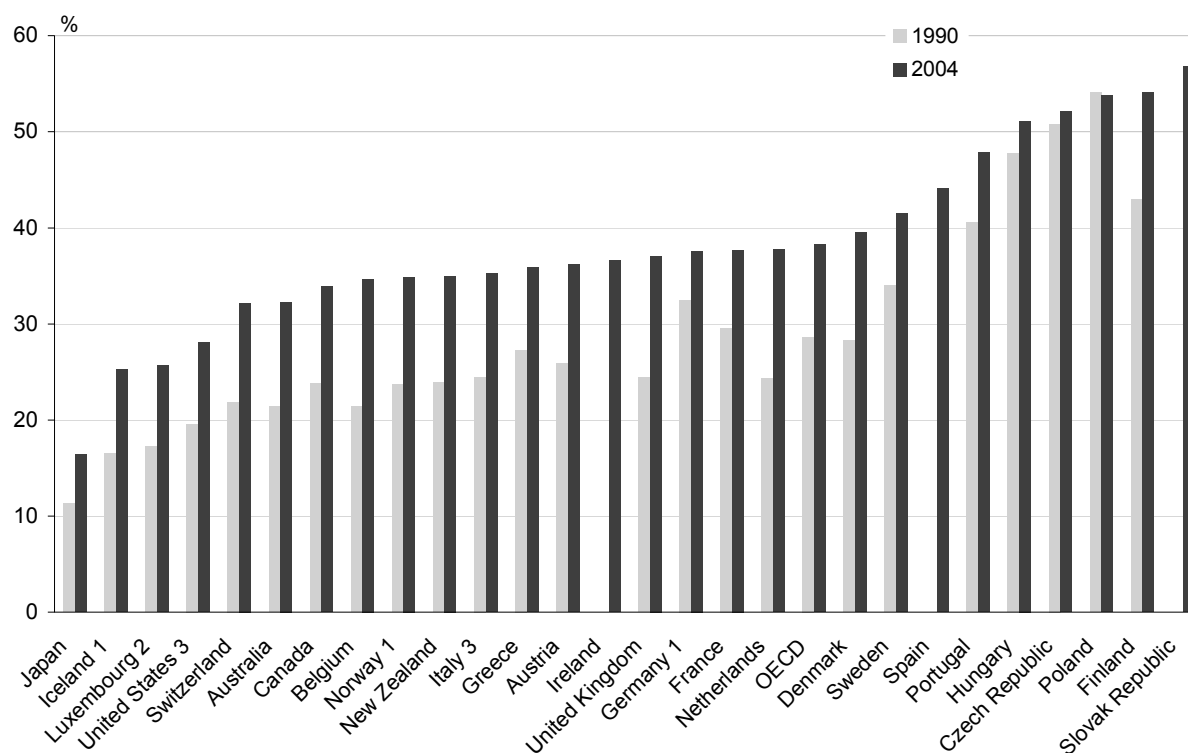


Chart 6. Women physicians as a percentage of total physicians, 1990 and 2004



1. Data refers to 1991 2. Data refers to 1992 3. Data refers to 1993  
 Source: OECD Health Data 2007

20. In the case of nurses, the growth (or shrinkage) in headcounts in the period 1990-2005 can be explained by the same factors as for doctors. However, rising demand may have been offset to a greater extent than in the case of doctors by productivity improvements. Hospital beds, and some of their accompanying nurses, have been reduced in many OECD countries because of increasing day-case treatment, declining length of stay and the discharge of long-stay patients to residential homes and domiciliary settings. However, nursing data reported to the OECD may be incomplete. Whereas the reductions in hospital nurses may have been counted fully, increases in nurses in domiciliary settings have gone unreported in some countries, especially if such nurses were employed in the private sector.

### 1.2. Projections of the demand and supply of doctors and nurses

21. In many OECD countries the younger age cohorts in the population are expected to decline over the next 20 years (Box 2). This will potentially make it more difficult to train and recruit health workers at home.

22. A number of countries have published projections of demand and/or supply for doctors and nurses. The results of these projections are reported below.

#### 1.2.1. Doctors

23. In the case of doctors, in Canada the Canadian Medical Association published supply estimates in 1999 that suggested that medical density in Canada would decline from about 1.7 in 2005 to 1.5 in 2021, even with a delay in retirement and a 20% increase in postgraduate training from 2005. These projections are based on the assumption that Canada needed to maintain a rate of physicians per thousand population of 1.8 to 1.9.

24. In France, the Ministries of Employment, Labour and Social Cohesion and of Health and Social Protection have published projections of supply from 2002 to 2025 which suggest that their number of doctors could decline by 9.4% (and medical density by 16%) if the *numerus clausus* were to remain at 7000 places from 2006 onwards and would still decline by 4.9% (and medical density by 11%) if the *numerus clausus* were increased to 8000 places. This projected decline is partly due to the fact that entry into the second year of medical school has been controlled tightly over the previous two and a half decades. The *numerus clausus* was reduced steadily from around 8,700 in the mid 1970s to around 3,500 in the early 1990s and was held at that level for most of the rest of the 1990s (Cash and Ullman 2007).

25. In Japan, a Special Committee on the Demand and Supply of Doctors set up by the Ministry of Health Labour, and Welfare, has released estimates which suggest that the supply of doctors will increase by 21% between 2004 and 2025. The Committee has stated that it expects supply and demand to be in balance in 2022 (Igushi 2007).

26. In the United Kingdom, the 'Wanless' report (2002) which set out alternative scenarios for the expansion of the National Health Service suggested that the UK was short of doctors and nurses. The demand for doctors could increase by about 50% between 2005 and 2020. Supply might increase by about 27% leading to a projected shortage of doctors of about 20% in 2020 (Wanless, D. 2002).

27. In the US, the Health Resources and Services Administration (HRSA) has estimated that the demand for physicians could increase by 22% between 2005 and 2020. However, the supply might increase by 16%, leading to a shortage of about 2.5% in the supply of total active physicians in 2020.

### 1.2.2. Nurses

28. In the case of nurses, in the UK, the 'Wanless' report estimates that the demand for nurses would increase by about 25% between 2005 and 2020 and that supply would expand by a similar amount, leading to an approximate match between demand and supply in 2020.

29. In the US, the HRSA has estimated in a baseline projection that the demand for nurses may increase by 31% between 2005 and 2020. A baseline estimate of supply suggested a shrinkage of 7% which would lead to a large shortage of nurses in 2020. However, the HRSA estimated that if nurse wages rose by 3% per annum between 2000 and 2020 and nurse graduates rose by 90% over the same period, supply and demand would be roughly in balance by 2020 (HRSA 2004).

#### **Box 1. Decreasing pool of young cohorts**

UN population projections (using a medium fertility assumption) suggest that in Europe, population numbers in the age group 15-24 will decline by about 25% between 2005 and 2025. In Japan numbers in this population group will decline by about 20% and in Korea by 33% over the same period. However, in Australia, Mexico and New Zealand numbers will remain almost constant and in the United States, these are expected to increase by over 8%. Table 1 shows the relevant UN projections for the population aged 15-24 in all 30 OECD countries. To respond to anticipated shrinkage of younger age cohorts, measures have now been taken in several countries to raise the supply of health professionals, by, for example, raising training rates. It remains to be seen whether these measures will be adequate and sustainable.

Table 1. UN projections of population aged 15-24, 2005-2025, OECD countries.

| Country        | 2005                               | 2025                                    | % change<br>2005-2025 | Country           | 2005                                    | 2025                                    | % change<br>2005-2025 |
|----------------|------------------------------------|-----------------------------------------|-----------------------|-------------------|-----------------------------------------|-----------------------------------------|-----------------------|
|                | Population<br>15-24<br>(thousands) | Population aged<br>15-24<br>(thousands) |                       |                   | Population<br>aged 15-24<br>(thousands) | Population<br>aged 15-24<br>(thousands) |                       |
| Australia      | 2809                               | 2874                                    | 2.3                   | Luxembourg        | 53                                      | 66                                      | 24.5                  |
| Austria        | 1001                               | 857                                     | -14.4                 | Mexico            | 19005                                   | 19026                                   | 0.1                   |
| Belgium        | 1255                               | 1174                                    | -6.5                  | Netherlands       | 1949                                    | 1978                                    | 1.5                   |
| Canada         | 4340                               | 4104                                    | -5.4                  | New Zealand       | 587                                     | 602                                     | 2.6                   |
| Czech Republic | 1350                               | 964                                     | -28.6                 | Norway            | 571                                     | 611                                     | 7.0                   |
| Denmark        | 597                                | 660                                     | 10.6                  | Poland            | 6220                                    | 3508                                    | -43.6                 |
| Finland        | 653                                | 599                                     | -8.3                  | Portugal          | 1327                                    | 1138                                    | -14.2                 |
| France         | 7789                               | 7909                                    | 1.5                   | Republic of Korea | 6953                                    | 4654                                    | -33.1                 |
| Germany        | 9761                               | 7578                                    | -22.4                 | Slovakia          | 850                                     | 528                                     | -37.9                 |
| Greece         | 1355                               | 1089                                    | -19.6                 | Spain             | 5263                                    | 4859                                    | -7.7                  |
| Hungary        | 1289                               | 957                                     | -25.8                 | Sweden            | 1115                                    | 1093                                    | -2.0                  |
| Iceland        | 43                                 | 42                                      | -2.3                  | Switzerland       | 892                                     | 840                                     | -5.8                  |
| Ireland        | 641                                | 690                                     | 7.6                   | Turkey            | 13604                                   | 13280                                   | -2.4                  |
| Italy          | 5959                               | 5699                                    | -4.4                  | United Kingdom    | 7841                                    | 7457                                    | -4.9                  |
| Japan          | 14111                              | 11124                                   | -21.2                 | United States     | 42759                                   | 46457                                   | 8.6                   |

Note: Data refers to medium fertility variant. The medium fertility assumption is defined as countries where fertility has been declining but whose level was still above 2.1 children per woman in 2000-2005

Source: The 2006 revision population database, United Nations Population division

### *Summary of the main findings of Section 1*

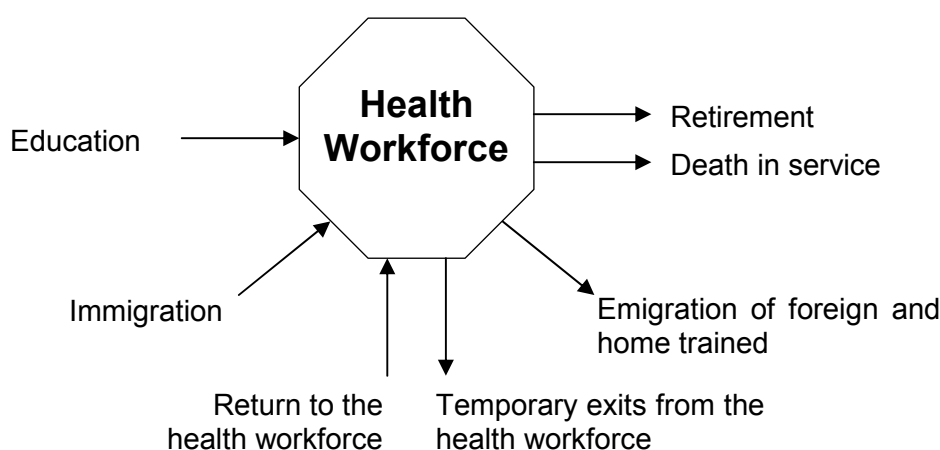
30. On average, there has been a prolonged growth in physician and nurse density in OECD countries over the past 30 years but the growth rates have slowed sharply since the early 1990s. Cost containment policies, such as control of entry into medical school in the case of doctors, and closure of hospital beds in the case of nurses, may explain much of the slowdown. By 2000, several OECD countries were reporting shortages of doctors and nurses and some countries published projections of the supply and demand for doctors suggesting that as a result of the anticipated retirement of health workers and increasing demand for their services, shortages would increase unless training rates were raised. Meanwhile, UN population projections suggest that between 2005 and 2025, younger age cohorts in the population will shrink in many OECD countries.

## 2. International recruitment and domestic education policies for human resources for health: better understanding the interactions

31. Changes in the physician and nurse workforces (that is in the stocks of professionals) can be attributed to differences over time between certain key inflows to the workforce, such as registration of new graduates following domestic training, immigration and return to work following inactivity, and certain key outflows, such as retirement, emigration, temporary inactivity and death in service. Chart 7 depicts these inflows to and outflows from the stock in diagrammatic form.

32. Increasing domestic training or recruiting doctors and nurses abroad are certainly the two most important and direct means to expand the health workforce. These policies have, however, quite distinct characteristics both in term of dynamics and impacts. For this reason, among others, OECD countries tend to choose different mixes of training and immigration. In recent years, international recruitments are perceived to have played an increasing role.

**Chart 7. In- and out- flows into the health workforce**



33. Annex 2 presents available data on graduation and immigration flows of foreign-trained doctors and nurses, for a selection of OECD countries in the period 1995-2005, or for sub-periods. It shows some important developments. First, whereas the numbers of domestic graduates were fairly flat or increasing gently in most countries over the period for which data are shown, numbers of foreign-trained, physician immigrants rose sharply in most of the countries around 2002 or 2003, or earlier in Ireland, New Zealand and Norway. Secondly, including temporary employment authorisations (when data are available) immigration rates exceeded graduation rates throughout the period for which data are available in six countries (Australia, Canada, New Zealand, Norway, Switzerland and the United Kingdom) and rose above domestic graduation rates during the period in one more country (Sweden).

34. Data for nurses show similar trends. For example, there were upward trends in the numbers of nurse immigrants in several of the countries around the turn of the last Century. Also, numbers of foreign entrants exceeded domestic graduates in 3 of the countries for part of the period. However, nurse immigration appears to have played a much more modest role than physician immigration in about half of the selected countries.

35. These data suggest that many countries were caught by surprise fairly simultaneously, around the turn of the last Century, by a combination of rising demand and limited domestic supply; a situation which contributed to the resurgence of a questioning on “self-sufficiency” and the role of workforce planning in the health sector.

36. Beyond basic questions such as “Do we train enough?” or “Do we need more doctors and nurses?”, there is a need to better understand the interactions between education and migration and their contribution to health workforce supply. Before analysing the contribution of migration to changes in the health workforce in OECD countries, this section considers the role of education and migration policies.

## **2.1. Education of the health workforce: fluctuating training rates under control**

### *2.1.1 Medical education*

37. Despite differences across countries over medical school enrollment, virtually all OECD countries exercise some form of control over medical school intakes – often in the form of a *numerus clausus*. This is motivated by a variety of factors of different nature including (i) the willingness to maintain high-quality standards, (ii) the desire to control the total number of doctors for cost containment reasons (because of induced demand mechanisms), (iii) the cost of training, which makes it difficult to have full private funding.

38. Controlling medical students’ intake does not mean that the numbers are automatically flat or decreasing. In fact, a *numerus clausus* is instrumental to policy goals and countries have varied the cap at different times. In the last decade of the 20<sup>th</sup> Century, for the OECD as a whole, the rate of medical graduation decreased, although in more recent years a reversal of the trend has been observed in many countries.

39. Annex 3 provides details on the different methods of control of medical and nursing student numbers adopted by OECD countries. France, Italy, Germany, Netherlands, Portugal, and more recently Belgium and some Swiss Cantons have adopted a *numerus clausus* system, whereas in countries like New Zealand, budget constraints limit the places which are funded. Some countries, such as Ireland, leave some discretion to medical schools to determine the number of students.

40. Not surprisingly, countries with a high medical graduation rate like Austria, Ireland and Greece are those which have adopted more flexible student intake policies. However, there is much variation among countries with a *numerus clausus*. While, graduation rates in Denmark and Italy are higher than OECD average, Portugal has one of the lowest medical graduation rates.

41. In the United States, unlike most OECD countries, the private sector plays an important role in medical education. There is no national planning, nor formal quotas or other restrictions within medical schools (Cooper, 2007).<sup>3</sup> The Bureau of Health Professions (BHP) and the Council on Graduate Medical Education (COGME) published projections which suggested that there would be surpluses of physicians in the 1980s and early 1990s. This led to a freeze in the expansion of medical schools. Even so, growth in demand propelled a continued expansion of the Graduate Medical Education programme partially filled by foreign-trained doctors. Many believe this was due partly to continuing financial support for the training of residents through Medicare, which is a Federal program. Medicare funding was capped in 1997. However, there is still a steady gap of approximately 25% between the number of US medical graduates and residency positions available. The additional positions are filled by international medical graduates, either US citizens<sup>4</sup> or foreign nationals. This is a fairly unique situation where dependence on migration is almost explicit in medical education policy.

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<sup>3</sup> Undergraduate medical education is however partly funded by States, notably through Medicaid. About 60% of all allopathic medical schools and 30% of osteopathic medical schools are State owned or State related.

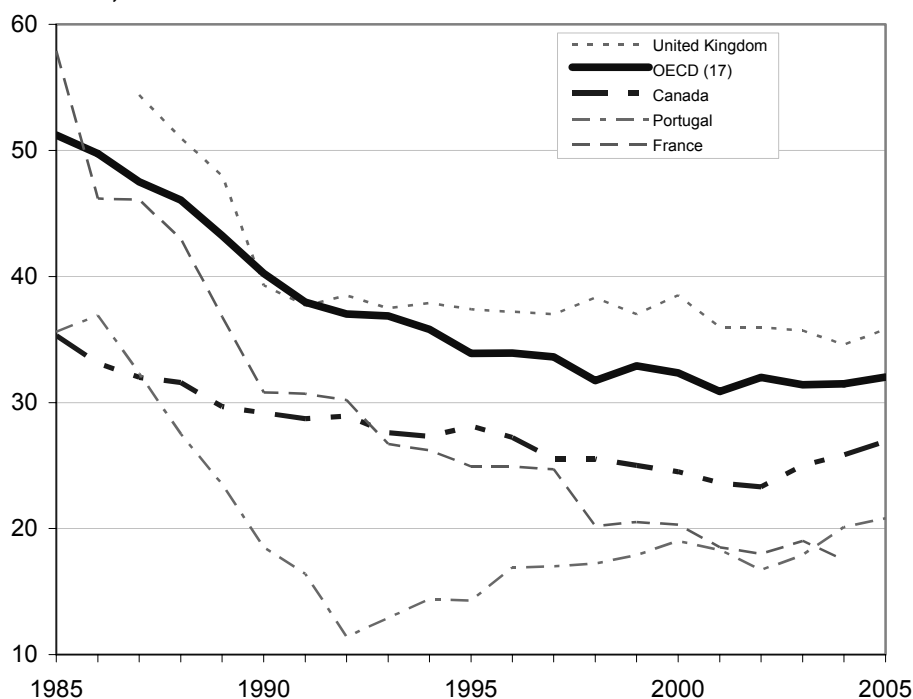
<sup>4</sup> Between 1985 and 2000, approximately 1,000 US-IMGs entered residency training annually, a number that has increased in recent years, largely because of the growth of medical schools in the Caribbean (Cooper, 2007).



42. In Japan, which reports one of the lowest physician densities in the OECD area, the number of medical graduates per 1000 physicians fell from 45 in 1985 to 28.5 in 2005. However, there has been almost no immigration of foreign-trained doctors into Japan. Doctor shortages have been discussed for some years and were attributed to government limits on the number of medical students and the desire of the Japan Medical Association to limit competition. However, it has been reported that the Japanese government had proposed recently to increase the number of medical students – the plan would take a long time to increase the number of doctors (Ebihara, 2007).

43. If annual graduation rates are expressed as a proportion of the stock of physicians, on average, graduation rates fell from about 5% to about 3% between 1985 and 2000 in 17 OECD countries for which data can be found, after which they stabilised during the following 5 years (Chart 8). The great majority of the countries concerned operated implicit or explicit controls on domestic training of physicians. The reported shortages of physicians which emerged around the turn of the last Century in many countries could not be eliminated quickly by expanding domestic training capacity. Rather, the shortages were eliminated, or partly eliminated, by the sharp increases in immigration of doctors.

**Chart 8. Number of medical graduates per 1 000 physicians, selected OECD countries, 1985 to 2005**



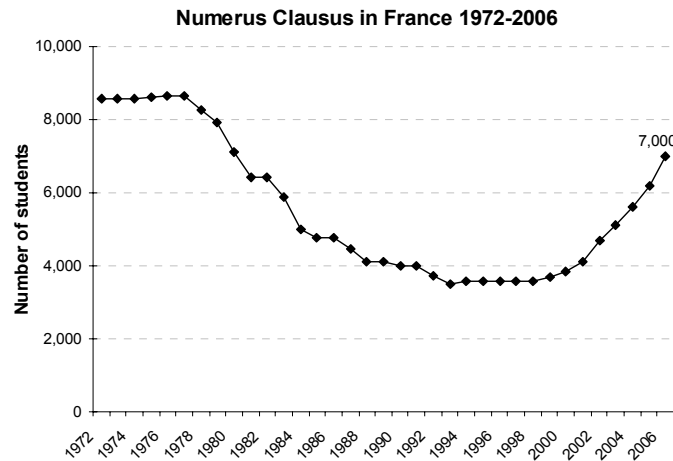
Note. Consistent average is calculated on the basis of 17 OECD countries

Source: Health at a Glance 2007

**Box 2. Changes in intakes into medical education: the not so contrasting examples of Australia and France**

**France**

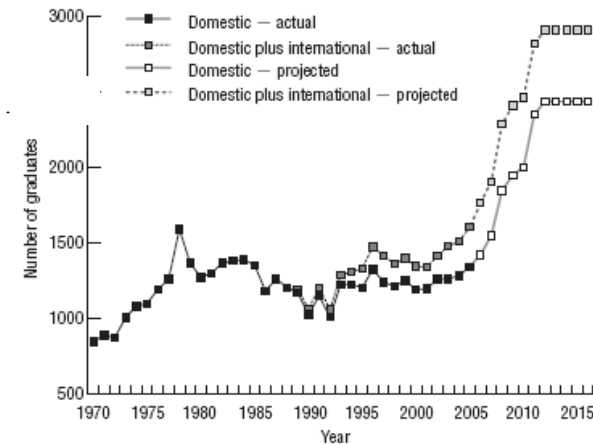
In France, a dramatic change took place in the 1970s following the introduction of the *numerus clausus* in 1971. While the *numerus clausus* was above 8,000 in the beginning of the 1970s, it reached a low of 3,500 in 1992 before rising again to 7,100 in 2007. The “*numerus clausus*” was introduced with the aim of avoiding an oversupply of doctors in the future. However, at that time, its level was fixed relatively high, because the discussions on the link between the number of doctors and health expenditures had only started. Nonetheless, this issue became a central point of discussion at the end of the 1970s and resulted in the decision to lower the *numerus clausus*. This trend continued until the end of the 1990s. Medical unions, the government, and the French Social Health Insurance (Sécurité Sociale) were in favour of decreasing the number of doctors as they thought that it would allow reductions in health expenditures, while medical deans considered that such policy would cause difficulties in hospitals where there would be insufficient interns. Based on their medical demographic projections, the French Medical Association also began to argue for increases in the *numerus clausus*, and, in the beginning the 1990’s, their concern found greater echo, and since then, the *numerus clausus* has been increased on a regular basis (adapted from Ullman and Cash 2007).



**Australia**

“Historically, the long-term picture indicates evident cycles in Australian medical workforce supply policy, with periodic shifts between phases of containment and growth. In 1973, increases to medical school intakes were recommended in response to perceived workforce shortages. Intakes were expanded, and graduations from medical schools rose steadily during the 1970s, from 851 in 1970 to 1278 in 1980. By then, the medical workforce was believed to be in oversupply, and reductions to medical school intakes were recommended and subsequently implemented. Effects of this on graduate numbers were seen from the mid 1980s, with 1030 graduates in 1990. The medical workforce was considered to be in surplus throughout the 1980s and into the 1990s, and medical school intakes remained static. In the late 1990s, opinion began to swing back to a view of medical workforce shortage, and after a 20-year period of no change, intakes to medical schools were once again rigorously augmented. Five new medical schools have opened since the year 2000, with a further seven programs planned by 2008, doubling the number of medical schools since 2000. Combined with increases to intake numbers in existing medical schools, this represents a square wave shift that is in stark contrast to the static pattern of graduate numbers over the previous two decades.” (Source : Joyce and al. 2007).

**2 Australian university medical school graduates: actual and projected, 1970–2016**



44. However, domestic medical education capacity was expanded at the same time in many OECD countries. Some have increased domestic training like the United Kingdom, France and Australia sometimes partly by opening new medical schools (see Box 2.). In these countries, enrolment almost doubled between the middle of the 1990s and now. In Canada, there was a similar change in perception from a perceived surplus to a shortage of doctors around the mid 1990s (Barer et al., 1991). First year enrolment in Canadian Medical Schools had declined fairly steadily from about 1900 in 1983 to about 1600 in 1997. Growth resumed in 1998 and estimated enrolment was expected to be about 2400 in 2007, an increase of about 50%. (Dauphinee, 2006). In the United States, the American Association of Medical Colleges (AAMC) called for an urgent and immediate expansion of medical schools by 30% (AAMC, 2006). By 2007, the AAMC was able to report that planned intake by its members schools was set to increase by 17% by 2012.

45. The rapid expansion of medical training in these countries in recent years, or planned for the near future, seems to demonstrate that OECD countries have not only recognised the potential shortages of doctors which they face but have been able to respond to it vigorously. It remains to be seen whether this expansion will be sustained,<sup>5</sup> whether it will lead to equilibrium in the medium term or not, and what will be the implications for migration. There have even been suggestions of possible future oversupply (Joyce et al., 2007, Goodman, 2004). In at least one country, the United Kingdom, there have been reports in 2007 of domestic medical graduates being unable to find postgraduate positions as junior doctors. Meanwhile, immigration of doctors and nurses into the U.K. has been firmly discouraged.

### 2.1.2 Nursing education

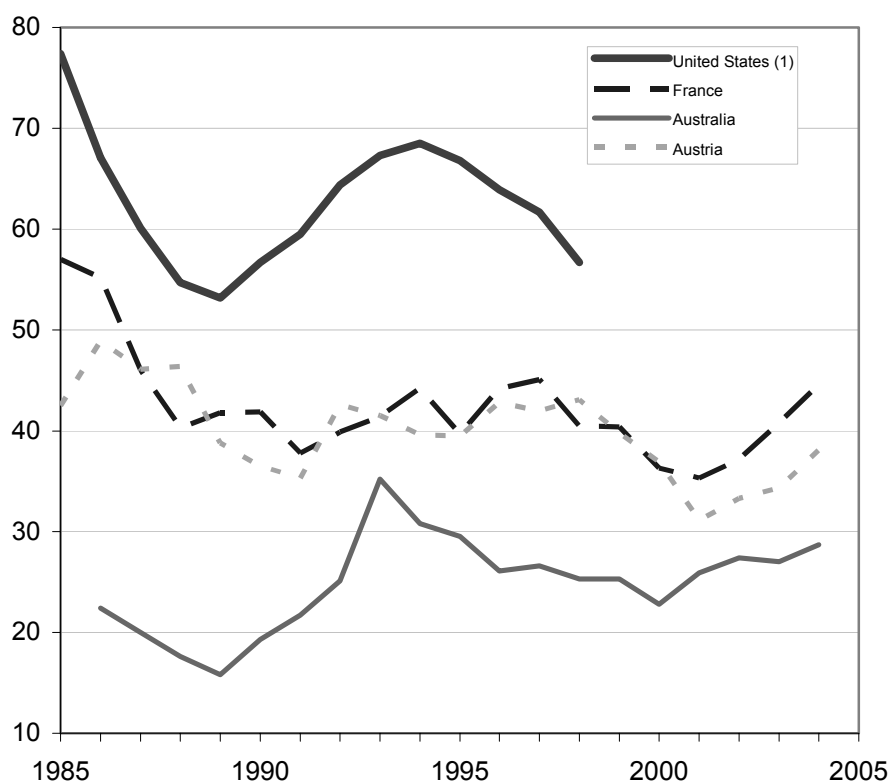
46. The situation for nursing schools differs to some extent as in almost half of the OECD countries the training of nurses is left to decentralised market forces --a “demand driven model”. Some OECD countries, nonetheless, regulate nursing school intakes (Annex 3). The motivation for regulating nursing education is probably quite different than that for doctors as induced demand mechanisms do not apply and the cost of training is more in line with other tertiary programs. There are fewer signs that nurse graduation had declined over the period 1985-2005 – although only scanty evidence is available (Chart 9).

47. In Australia, Belgium, Mexico, Netherlands, New Zealand, Norway and the United States the number of available nursing places is determined by nursing schools themselves on the basis of student demand and their assessment of the needs of the labour market (Simoens *et al.*, 2005). The role of the government in these countries is essentially limited to the funding of public nursing education. However, in many OECD countries, the number of places available in nursing schools is planned by the government (Ministries of Health and Education) at national and/or regional level.

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<sup>5</sup> The cost of expansion still appears to be a debated issue in the United States. The annual investment necessary to reach the objective of the AAMC to expand by 30% medical school enrolment is estimated between 4 and 5 billion USD (Weiner, 2007).

Chart 9 Number of nursing graduates per 1 000 nurses, selected countries, 1985 to 2005



Note: Due to limitation in data availability, the OECD average is not available

1. For the United States, the data are only available until 1998 because the data collection on licensed practical nurses graduates was discontinued afterwards.

Source: Health at a Glance 2007

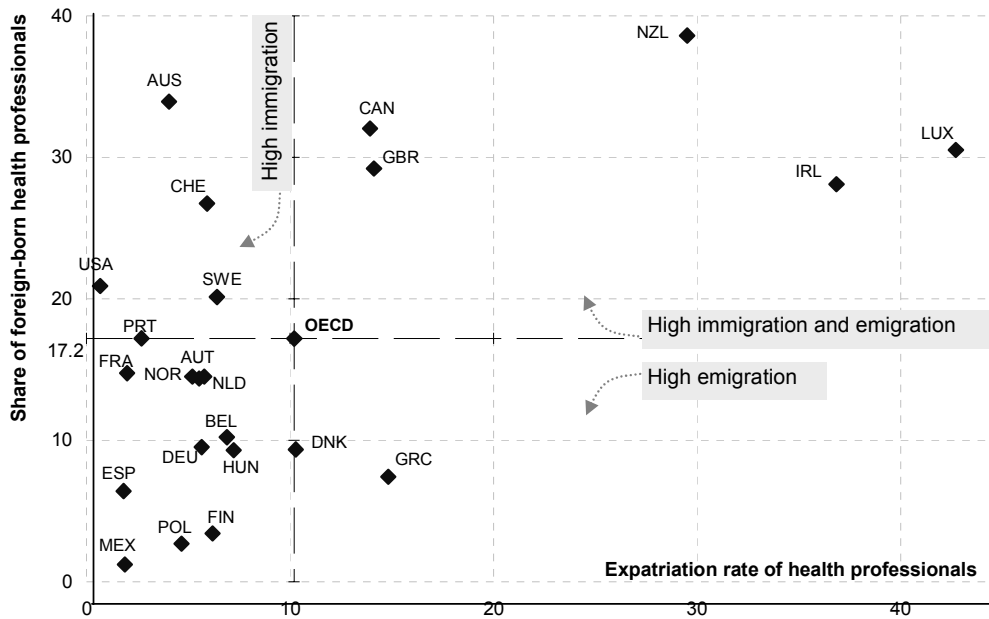
## 2.2. International migration of doctors and nurses

### 2.2.1 Cross-country variation in migration

48. OECD countries are quite diverse in terms of migration. Charts 10 and 11 compare the percentage of foreign-born doctors and nurses and the emigration rates in individual OECD countries with the respective OECD unweighted averages in 2000. The charts allocate countries into four groups according to the relative importance of their immigration and emigration of health professionals.

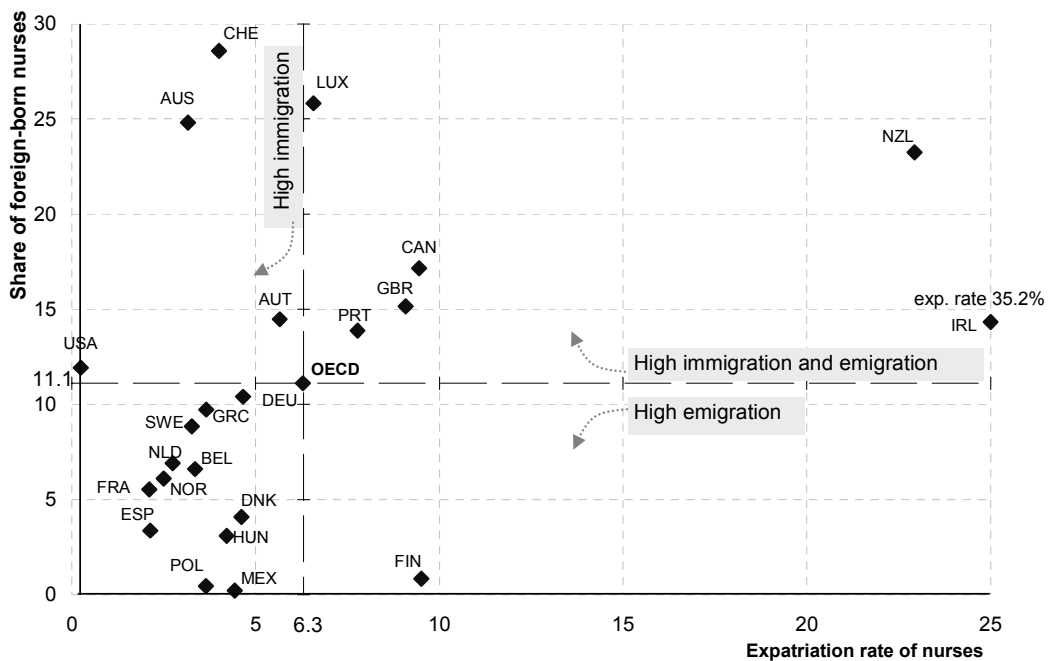
49. Some countries like Canada, Ireland, Luxembourg, New Zealand and the United Kingdom face both important immigration and emigration of doctors and nurses. Percentages are particularly high in absolute terms for New Zealand. Conversely, Central and Eastern European countries, as well as Mexico, Turkey and Asian OECD countries were not much exposed to migration of health professionals in 2000. Countries like Australia, Switzerland and the United States appear as mainly immigration countries.

Chart 10. Immigration and expatriation rates of health professionals (except nursing) in selected OECD countries, circa 2000



Note: Data refers to all health professionals except nursing based on ISCO (222) definition. For each OECD country, expatriation rate is computed by dividing the number of doctors born in that country and who are working as a doctor in another OECD country by the total number of doctors who were born in that country.  
Source: International Migration data 2007

Chart 11. Immigration and expatriation rates of nurses in selected OECD countries, circa 2000



Note: Data refers to associate nurses, nursing and midwifery professionals based on ISCO (223 and 323) definition  
For each OECD country, expatriation rate is computed by dividing the number of nurses born in that country and who are working as a nurse in another OECD country by the total number of nurses who were born in that country.  
Source: International Migration data 2007

50. The picture drawn in Charts 10 and 11 reflects to a large extent, once again, general migration patterns. Controlling for country specific levels of highly skilled migration does not change drastically the analysis. Table 2, confirms the importance of immigration and emigration for health professionals (except nursing) in Canada and New Zealand and identifies 8 countries where immigrant doctors make up a particularly important share of the health workforce. These include notably Australia, the United States, the United Kingdom but also several Nordic countries.

**Table 2. Categorisation of OECD countries according to the relative importance of migration of health professionals (except nursing), circa 2000**

|                                       |                                                                                  |
|---------------------------------------|----------------------------------------------------------------------------------|
| <b>High immigration countries (1)</b> | Australia, Hungary, Netherlands, Norway, Sweden, United Kingdom, United States   |
| <b>High emigration countries (2)</b>  | Denmark, Greece, Ireland, Luxembourg                                             |
| <b>Both</b>                           | Canada, New Zealand                                                              |
| <b>None</b>                           | Austria, Belgium, Germany, Spain, Finland, France, Mexico, Portugal, Switzerland |

(1) Includes countries whose difference between share of foreign-born doctors and highly skilled is greater than 3 points

(2) Includes countries whose difference between expatriation rates of doctors and highly skilled is greater than 3 points

Source: International Migration Outlook 2007

51. Over the past decade, increasing immigration flows of health workers outpaced the changes in medical and nursing graduation in most OECD countries. These diverging trends may, however, provide a distorted image of the relative contribution of each input to medium or long-term variations of health workforce, depending on the characteristics of migrants and particularly of their age structure and average duration of stay. In other words, the contribution of international migration to changes in the stock of doctors and nurses might be quite different from its contribution to new inflows into the workforce.

52. Previous tables and graphs have emphasised some small OECD countries as having important immigration or emigration of health professionals as a proportion of *their* total stock of health professionals. However, in order to identify the impact of an individual country's policies on the global migration of health workers, the absolute number of migrants also matters (Box 3).

### **Box 3. Absolute numbers also matter**

From this perspective the United States is the main receiving country within the OECD with about 200 thousands foreign-born doctors and 280 thousands foreign-born nurses, circa 2000 (the corresponding figures for the foreign-trained were about the same for doctors and roughly half as much for nurses). The second largest receiving countries in the OECD are the United Kingdom for doctors with about 50 thousand foreign-born doctors and Germany for nurses with at least 75 thousand foreign-born nurses.

Overall, the United States received 47% of foreign-born doctors working in the OECD area in 2000 and the OECD-EU25 countries approximately 39%, although a significant proportion of the foreign-born in the European Union originate from within the EU (about 24% for doctors and 38% for nurses). Australia and Canada received each close to 5% of the total. The breakdown by destination country for nurses is quite similar.

More data and analysis on the absolute and relative number of foreign-trained and foreign-born doctors and nurses across OECD countries is available from Dumont and Zurn (2007).

### 2.2.2 The role of migration in shaping the health workforce

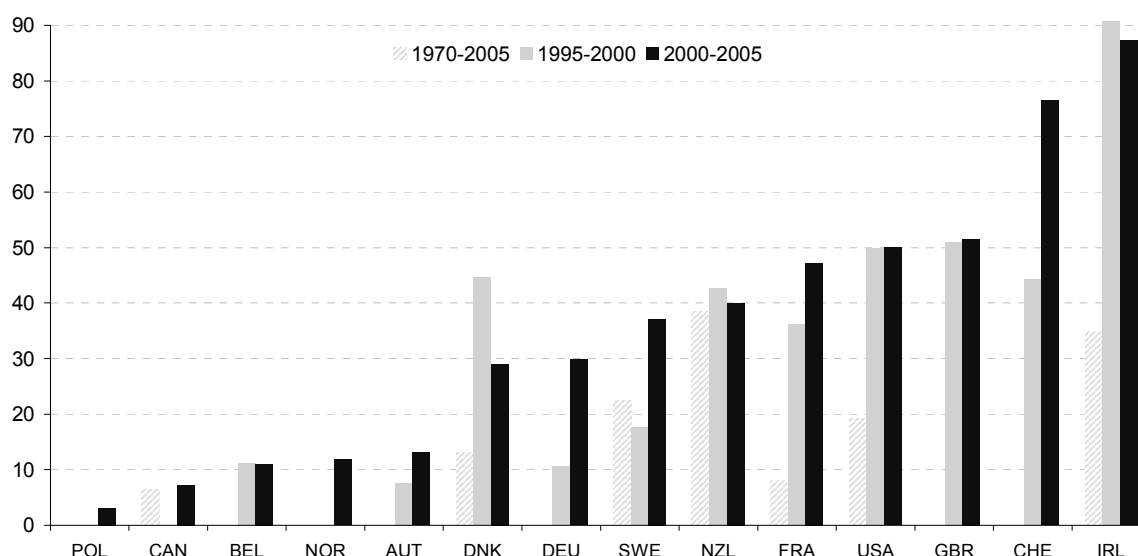
53. The information based on place of birth could give a distorted image of the role of international migration in shaping the health workforce in OECD countries if a significant share of the foreign-born were in fact trained in the receiving country and not in their origin country. A comparison between foreign-born and foreign-trained health professionals in OECD countries indicates lower percentages for the latter than for the former (Dumont and Zurn, 2007).

54. To better identify the role of migration, variations in the stock of foreign-trained doctors between 1970-2005, 1995-2005 and 2000-2005, are compared to that of the total stock of doctors in selected OECD countries. Chart 12 depicts important differences between countries with Switzerland and Ireland having the most important reliance on international recruitments over the last 5 years. In the United Kingdom and in the United-States, about 50% of the increase in the stock of doctors may be related to changes in the stock of foreign-trained doctors between 2000 and 2005. Important percentages are also found for France and to a lesser extent for New Zealand and Sweden.

55. In some countries, like the United States, the percentages computed are higher than what would have been suggested by flow data because foreign-trained doctors tend to be permanent immigrants and are underrepresented in workforce outflows; few of them depart and most of the retirees are in age cohorts which included few foreign-trained doctors. In other countries, such as New Zealand or the United Kingdom, the opposite can be observed, as migration is mainly temporary, but also because emigration of home trained doctors is quite important. The latter argument can also be mentioned for Germany for instance. In the case of France the importance of migration is essentially explained by decreasing (and low) graduation rates since at least 2 decades despite a sustained increase in the total number of doctors.

56. In spite of cross country differences, in all cases for which data are available, migration played a more important role in shaping the medical workforce over the last 10 years than it has, on average, since the 1970s. The increase is particularly marked in Ireland, France and the United States but negligible in New Zealand and Canada.

Chart 12. **Contribution of foreign trained doctors to the net increase in the number of practicing doctors in selected OECD countries, percentage 1970-2005**



Source : Health Data and International Migration Outlook 2007

Note: data for Germany, Belgium and Norway refer to foreign doctors instead of foreign-trained doctors.

57. Data for nurses are only available for few countries but show similar trends. For instance, migration counts for most of the increase of the total stock of nurses in Ireland between 2000 and 2005. The situation is even more striking in New Zealand where, *ceteris paribus*, the total number of nurses would have declined markedly without immigration (Zurn and Dumont 2007). Canada is also an interesting case taking into account that net migration accounts for about 40% of the increase in nursing workforce since 2000; a situation which contrasts significantly with what was observed for doctors. For other countries where data are available (Belgium, Denmark Sweden, Finland and the Netherlands) the role of migration is more limited.

### 2.2.3 *Why and when international recruitments of health professionals take place*

58. Many factors contribute to explain cross-country differences in the contribution of migration to changes in health workforce stocks. In some cases international recruitment of doctors and nurses will result from unforeseen mismatch between supply and demand for doctors or nurses but it could also be the case that they simply reflect the role of migration in the dynamic of the labour market in general.

#### Unforeseen mismatch between supply and demand due to exogenous shocks

59. Despite the efforts devoted by national and regional authorities to anticipate and control the demand for health professionals (see below) it may happen that the inflow of new graduates is insufficient to meet demand. This can occur primarily because of the length of medical education<sup>6</sup> : it takes about 10 years to train a doctor, which may be far more than for government policy to change.

60. Legislative changes with respect to working hours for junior doctors or other health professionals in general, notably in the EU context with the Working Time Directive<sup>7</sup> but also in the United States<sup>8</sup>, are good examples of unanticipated demand shocks which have contributed to unbalance the labour market.

61. A large and sustained rise in public spending on the NHS, a few years after the election of the Labour Party in the United Kingdom in 1997, provides another straightforward example of a sudden change in demand for health professionals. Despite the fact that the NHS adopted an ambitious mixed strategy to achieve staff growth, including increasing training, improving retention and fostering return to the workforce, in the short run, international recruitment had to be increased significantly to respond to the needs (see Buchan et al. 2007). As a result, foreign-trained doctors employed by the NHS in England increased from about 22000 in 1997 to almost 39000 in 2005.

62. There is indeed a strong argument for considering the role of some migration of health workers as a response to imbalances due to lags between business, political and training cycles. International recruitment of health professionals may appear as a result of unforeseeable changes in demand and the lags involved in expanding the workforce from domestic sources.

---

<sup>6</sup> The situation is to some extent different for nurses, although Specialised Registered Nurses (e.g. operating theatre nurse, nurse anesthetist, emergency nurse, oncology nurse ...) also need to follow a lengthy training process.

<sup>7</sup> The EWTD has applied to the vast majority of employees since 1998, with a few exceptions including doctors in training. In 2004, the EWTD provisions were extended to doctors whose maximum working hours must be reduced to 56 hours by August 2007 and to 48 hours from August 2009. Under certain undefined circumstances national governments may apply for a further extension of a maximum of three years to delay the final reduction to 48 hours.

<sup>8</sup> From 1 July 2003, the Accreditation Council on Graduate Medical Education has limited the working time of resident physicians to 80 hours a week. Shifts are never to last more than 24 hours, and residents will have one day off in seven and get a 10 hour break between being on call and working a shift.



63. Difficulties in responding to the demand for health workers can also result from unexpected outflows from the health workforce, including emigration. The EU enlargement in 2004 and 2007 provides a textbook example of how external shocks may impact the health workforce of origin countries. In a different context, countries like New Zealand and, to a lesser extent Canada, Ireland or the United Kingdom, which receive and send lots of doctors and nurses may be at mercy of sudden policy changes in other OECD countries which remain beyond their control.

64. Exogenous technological innovation may also impact the demand for health workers as it creates needs for new health care services (e.g. the development of Magnetic Resonance Imaging) or changes in care delivery and skill mix. Finally, many OECD countries, despite a combination of incentives and regulatory measures, face persisting difficulties in matching the geographic distribution and/or specialty distribution of health professionals with that of the needs of the population.<sup>9</sup> As a result unmet demand may occur in local areas or in specific occupations even if the overall supply of health workers may be, in theory, sufficient to address the needs.

65. There are certainly many reasons for unforeseen mismatches between demand and supply of health workers to occur and in many of these cases migration will appear as the main short-term adjustment variable, probably before price wages which are usually controlled for a variety of reasons.

#### Difficulties in health workforce planning

66. Health workforce planning is advocated by many to facilitate the attainment of an “adequate” supply of health personnel. In fact, all OECD countries undertake some form of health workforce planning but these exercises face a number of difficulties (Kolars, 2001).

67. First, fixing numerical limits essentially supposes a solid capacity to anticipate future demand,<sup>10</sup>. This seldom proves to be an easy task and there are many examples of prophecies of shortages or over-supply which never materialise. Uncertainties related to future population health needs, technological progress as well as methodological sensitivity altogether contribute to weaken forecasting exercises. As a result, health workforce planning may at best serve as a broad-brush.

68. Secondly, at the heart of health workforce planning in OECD countries is a potential “free rider” phenomenon. Countries have inadequate incentives to train sufficient health workers so long as they can rely on immigration to fill any gaps between supply and demand. Also, training more health professionals than necessary may be costly in terms of public expenditure. The resulting temptation to risk shortages and to export them, if they arise, raises both equity and efficiency concerns.

69. Third, a lack of coordination across different areas of planning may be an impediment<sup>11</sup>. In the United Kingdom, the recent report on workforce planning by the House of Commons called for a better integration between workforce, financial and services planning (House of Commons, 2007).

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<sup>9</sup> See section 3.1.5. for a discussion about the potential role of migration in addressing geographic imbalances.

<sup>10</sup> In the 1980s and early 1990s, following forecasts of health workforce oversupply in countries like Canada, United States and France, measures limiting the number of medical and nursing graduates were adopted. Recent projections suggest a shortage of health workers for the near future (Chan, 2002; Cooper, 2002; Ullman and Cash, 2007; HRSA, 2004; COGME, 2005).

<sup>11</sup> Workforce planning also often ignores the interrelationship between health professions (Maynard, 2006).

70. Also, while workforce planning could represent a promising area to consider the dynamic between domestic training and international recruitments, this is rarely the case. Immigration and emigration flows are seldom fully taken into account, except by assuming constant figures. This is a major shortcoming as inflows of foreign medical students and of foreign trained health professionals are making an increasing contribution to the health workforce in many OECD countries.

#### Migration of health professionals in the context of highly skilled migration

71. Not all the migration of health professionals should be regarded as responding to pull factors specific to the health sector of the destination country – such as better pay, professional development and career opportunities, or a desire to work in a diverse environment. Many other factors play a role, including push factors in the origin country, as well as migration policies (Box 4). For this reason, international migration of doctors and nurses should be put in the broader context of highly skilled migration in general (Box 5).

#### Box 4. Determinants of the contribution of foreign trained doctors to the health workforce

Different set of covariates of the contribution of foreign-trained doctors to changes in stock of physicians for 1995-2000 and 2000-2005 have been tested, covering areas of education (*numerus clausus*, current and lagged graduation rates), health expenditures (as a percentage of GDP and growth rate), variation in the number of doctors (growth rate and increase in the number of practising doctors) as well as migration (expatriation rate of doctors and percentage of foreign-born among the highly skilled).

Even if this tentative exercise faces a number of limitations due to data availability, it confirms the role of the general context of migration to explain the relative importance of international recruitments of doctors in shaping the health workforce. Indeed, countries facing a higher expatriation rate of their doctors tend to recruit more abroad. In addition, the relative importance of highly skilled migration in general explains a significant part of cross country differences as pointed out earlier. In this regard it is quite interesting that this variable has a coefficient close to one.

$$Share\_FT\_Doc = 3.4 + 0.4 \cdot P9500 + 1.7 \cdot Expatriation\_rate + 1.2 \cdot Share\_FB\_HS$$

(9.3) (7.2) (0.6) \*\*\* (0.6) \*

$N = 32$     $R^2_{adj.} = 0.31$     $*** = 1\%$     $* = 10\%$

*Share\_FT\_Doc* = Percentage of the change in stock of physicians attributable to changes in stock of foreign trained doctors

*P9500* = Index for the period 1995-2000

*Expatriation rate* = Expatriation rate of doctors (2000)

*Share\_FB\_HS* = Share of the persons with tertiary education who are foreign born (2000)

At the same time, no robust evidence of the impact of the other indicators listed above can be identified. This does not mean that there is no link but rather that it probably goes both ways : (i) important growth in the stock of doctors are recorded when investments in education have been made several years backward, implying no further need to recruit abroad, (ii) sudden changes in the demand for doctors result in more migration.

It is particularly difficult to disentangle the main determinants of the contribution of foreign-trained doctors to variations in the total stock of doctors with cross country data because much of the relationship probably lies in idiosyncratic effects that could only be considered with panel data.

Data are available for only 16 OECD countries (32 observations) and do not include any qualitative indicators on health policy or migration policy. Furthermore, longitudinal data are lacking to identify country-specific effects.

**Box 5. Policies on the migration of health workers**

In most OECD countries, if not all, no migration programmes target health professionals specifically. However, general migration schemes may provide simplified procedures to facilitate the recruitment of health workers, notably at the local or regional level.

Australia and New Zealand grant special points for health professionals in their permanent migration programmes. This facilitates the immigration of health workers but only to a limited extent. In the United States, H1-B visas are available for most health professionals. In 2005, about 7200 initial petitions were approved for medicine and health occupations including 2960 for physicians and surgeons. This corresponds to an increase of about 55% as compared to 2000.

In European OECD countries, work permits may be available for skilled immigrants and are generally granted for a limited period. These permits may be conditioned on a labour market test (*i.e.*, checks that there are no EU residents available to fill the position). Nonetheless, in most countries there are conditions under which the labour market test may be waived. This is the case, for instance, in the United Kingdom, Belgium, Ireland, Denmark, the Netherlands or Spain for occupations on the shortage list. In all these countries, all or some health professionals are, or have been included in the shortage lists.

A few OECD countries have bilateral agreements for the international recruitment of health professionals. Switzerland and Canada have a small agreement protocol which explicitly mentions health care workers and aims at facilitating the mobility between the two countries. Spain, which is supposed to have a surplus of nurses, has signed bilateral agreements, notably with France and the United Kingdom. Germany has bilateral agreements with several Central and Eastern European countries for the recruitment of foreign nursing aids. Bilateral agreements are also sometimes organised at the regional level. This is the case for instance in Italy, where several provinces have signed protocols with provinces in Romania to train and recruit nurses.

In Europe, the United Kingdom is the only country which has made intensive use of bilateral agreements and memoranda of understanding with non-OECD countries in the context of the international recruitment of doctors and nurses. It has signed an agreement with South Africa on reciprocal educational exchange of health care concepts and personnel (2003), a memorandum of understanding with India (2002) and a Protocol on Cooperation in Recruiting Health Professionals with China (2005).

72. As a matter of fact, the period of rapid economic growth at the end of the 1990s, compounded by growing concerns about ageing populations, has prompted many OECD countries to consider stepping up immigration to alleviate labour shortages (Dumont and Lemaitre, 2007; OECD, 2002). This has contributed to put more emphasis on skills of migrants and has persuaded most OECD countries of the need to adapt their migration policies to facilitate the international recruitment of highly skilled workers or to adopt more selective migration policies. There is now keener competition among OECD countries to attract the health care staff they lack and retain those who might emigrate. This trend comprises health workers but certainly goes well beyond the health sector.

73. Comparing the share of foreign-born doctors or nurses to the share of foreign-born in professional occupations or PhD holders shows that migrant health professionals are generally not overrepresented (see Dumont and Zurn 2007)<sup>12</sup>. The higher is the percentage of foreign-born among highly skilled workers, the higher it is also for doctors and nurses. Similar findings are observed for expatriation rates within the OECD area.

74. As a result, a higher contribution of migration to changes in the health workforce could simply reflect the fact that labour migration, and more specifically highly skilled migration, plays an important role in the dynamic of the labour market of the receiving country; a situation also influenced by language, geographic, cultural, historical as well as socio-economic factors in general.

<sup>12</sup> Switzerland for nurses and to a lesser extent New Zealand for doctors, however, appear as outliers.

#### *2.2.4. Limits of international recruitments of health workers*

75. International recruitments of foreign-trained health workers is not a *panacea* even if it might help to adjust supply to demand in the short run and may contribute to reduce the cost of training. Problems related to the integration of immigrants into health workforce (recognition of foreign qualification and language proficiency), cost of international recruitments especially when migration is mainly temporary, difficulties in retaining doctors and nurses in less attractive locations and positions and risk of dependence may appear as significant limitations.

76. The latter issue will be a major matter of concern if the key reason for recruitment difficulties lies in employment and working conditions in the receiving country. Systematic recourse to immigration might discourage domestic responses such as increasing training and creating adequate incentives to join the health profession. That might induce further reliance on migration inflows.

#### ***Summary of the main findings of Section 2***

77. Despite differences in their approach to medical and nursing education, most OECD countries exercise some form of control over student intakes either capping the total number of places or limiting the financial support to the education system. In the 1980s and 1990s, several OECD countries introduced tighter student enrolment policies with an objective of cost containment. As a result, nursing and medical graduation rates decreased. Around the turn of the last Century, many OECD countries found themselves facing shortages in health workers. These were partly met by increasing migration flows.

78. The contribution of foreign-trained doctors to changes in stocks of physician is significant and has been increasing over time in many OECD countries. There are however important cross country differences in migration of health workers can be explained by structural and unforeseen factors. The former reflects long standing migration trends while the latter arise from unforeseen imbalances in the health labour market (which are largely attributable to lags between business, political and training cycles).

79. While international recruitments of health workers can play a role in addressing short-term shortages, there is a clear choice between using migration and other policies, such as increasing domestic training or improving productivity, to address structural imbalances between supply and demand.

### 3. Better use and mobilisation of workforce skills

80. It has been shown above that increasing domestic training and/or developing international recruitment can be used to expand the health workforce. However, focusing solely on these ways of recruiting new staff may be neither efficient nor sufficient to address concerns about health workforce shortages, notably for hard-to-fill post.

81. OECD countries can adopt a variety of policies to make better use of the *existing* health workforce to address future shortages. Better retention, enhanced integration, and a more efficient skill-mix within the existing workforce can contribute to improving their availability, competence, responsiveness and productivity. Furthermore a country will more easily attract and keep hold of students or immigrants when its health workforce is managed well. This is why a combination of all policies is desirable for successfully addressing health workforce shortages. Policies to make better use of the existing workforce will be reviewed in this section.

#### 3.1. *Retaining the health workforce*

82. Each year, many health workers move to a different position or leave, temporarily or permanently, the profession, the region or the country.<sup>13</sup> To reduce turnover, policy makers and health-system managers have often increased remuneration and employed financial incentives. However, the impact of these practices is mixed. Alternative policies focusing on improving occupational status and the working environment are gaining increasing attention and appear to produce good results.

##### 3.1.1. *Retention difficulties compromise the ability to deliver high-quality care*

83. While a certain degree of turnover<sup>14</sup> is to be expected in an efficient medical and nursing labour market, excessive turnover might compromise the delivery of high quality health services and signal retention difficulties. It generates recruitment and temporary replacement costs, and it is associated with initial low productivity among the new hires. For example, O'Brien-Pallas and colleagues estimated the direct and indirect cost of turnover per nurse at 16 600 USD in Australia, 10 100 USD in Canada, 10 200 USD in New Zealand and at 33 000 USD in the United States (O'Brien-Pallas *et al.*, 2007). Retention difficulties can also negatively affect a number of important treatment and follow-up activities (Minore *et al.*, 2005).

##### 3.1.2. *Managing turnover requires a mix of policies*

84. Different types of turnover will call for a diversity of policy approaches to managing retention. "Controlled" turnover refers to retirement, redundancy and redeployment. "Voluntary" turnover is used to refer to employees leaving in response to dissatisfaction in the current job or to seek career progression and better pay in a new job. Unfortunately, there is no systematic information on the relative importance of each type turnover. Some evidence suggests that retirement and voluntary termination are among the main drivers of turnover, although there is substantial variation across countries and professions (O'Brien-Pallas *et al.*, 2007, Cash and Ulman, 2007).

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<sup>13</sup> For instance, the national turnover rates for Registered Nurses in the United States were 15.5 percent in 2003 (COMON, 2006).

<sup>14</sup> Turnover expresses the percentage of a defined labour force that is lost each year through retirement, death, international migration or occupational changes.

### 3.1.3. Is it all about better pay?

85. There are a number of financial levers to assist managers and policy makers to retain medical and nursing staff, including pay rises, bonuses, loan-repayment policies, targeted financial aids for the staff's families, and training scholarships.

86. Improved remuneration is among the most common approaches to reduce nurse turnover. Yet, financial incentives have produced mixed results here. While between 58% and 90% of nurses in several European countries express significant dissatisfaction with pay, evidence from one of the NEXT studies<sup>15</sup> suggests that poor remuneration explains only marginally their intention to leave the nursing profession. Literature reviews on nursing supply found only a weak positive relationship between wage and labour supply (Shield, 2004; Chiha and Link, 2003 and Antonazzo *et al.* 2003). However, there is some evidence that wage is one underlying reasons for leaving the profession (Hasselhorn *et al.*, 2005).

87. Setting the right remuneration level to influence doctors' supply is far from easy. Pay increases for doctors in the United Kingdom, implemented as part of a new contract for hospital consultants in 2003, seem to have increased consultant numbers. However, they also led to significant cost increase (NAO, 2007). But health sector reforms aiming at keeping remuneration from rising in order to contain overall health cost have exposed some countries to difficulties in maintaining an adequate level of services (Docteur and Oxley, 2004). As in the case of nurses, policies have focused on a mix of both financial and other incentives, such as on improving working-time flexibility, creating more flexible career development opportunities and offering a wider range of options for continued education and training.

### 3.1.4. Better workforce organisation

88. Low esteem, limited work control and dissatisfaction<sup>16</sup> with working conditions seem to be more important determinants of decisions to leave the nursing profession than perceived low pay (Hasselhorn *et al.*, 2005). As a result, policies focusing on the occupational status and the working environment are gaining increasing attention. Several OECD countries have developed policies to reduce nurse turnover by alleviating workload (Simoens *et al.*, 2005). Healthy workplace' strategies such as flexible work arrangements, family-friendly initiatives, leave and compensation benefits and safety practices are perceived to have a positive impact on nurse retention (Wagner *et al.*, 2002). Other successful initiatives include career development programmes and job redesign or task-shifting to reduce burnout.

89. The so-called "magnet hospitals" in the United States offer examples of successful practices. Magnet hospitals typically adopt: flat organisational structure, decentralised decision-making, flexibility in scheduling, positive nurse-physician relationships, opportunities for professional development, a good balance between effort and reward, and investment in education for nurses (Hasselhorn *et al.*, 2005). These institutions have successfully attracted and retained nurses during times of serious shortages, while also achieving good patient outcomes.

90. Although retention is less critical an issue for doctors than it is for nurses, workforce strategies addressing non-monetary factors appear likewise to affect physician retention. According to one recent study on Germany, three factors have a direct impact on physicians' job satisfaction and hence retention,

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<sup>15</sup> The NEXT-Study is investigating the reasons, circumstances and consequences surrounding premature departure from the nursing profession in several European countries (Belgium, Finland, France, Germany, Great Britain, Italy, the Netherlands, Poland, Sweden, and in Slovakia).

<sup>16</sup> For example, more than 40% of nurses working in hospitals report dissatisfaction with their job in the United States, Canada, England, Scotland, and Germany (Aiken *et al.*, 2001).

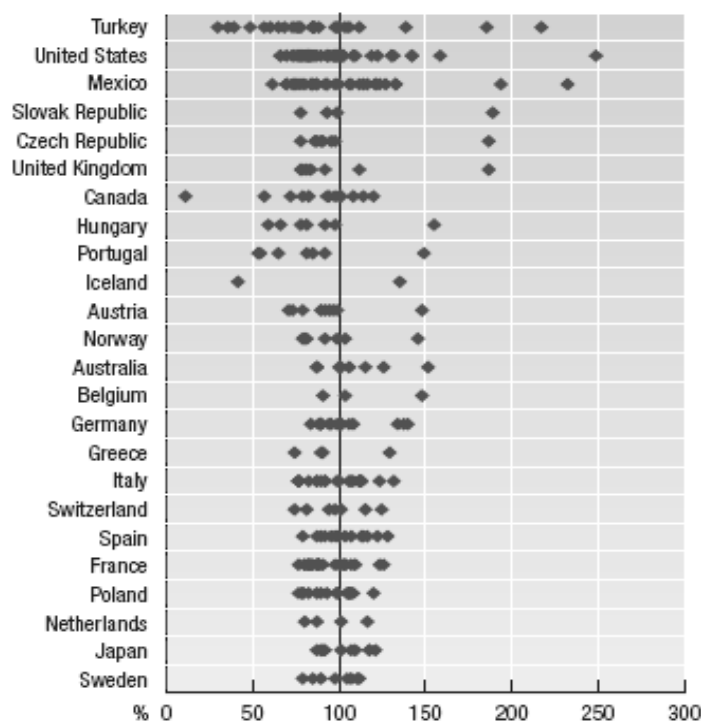
namely decision-making and recognition; continuous education and job security; administrative tasks and collegial relationships (Janus et al., 2007).

91. Flexibility is an important factor, especially given the growing feminisation of the medical workforce (Chart 6, above). Young and Leese (1999) identified improving working-time flexibility, creating more flexible career development opportunities, and offering a wider range of options for continued education as the main instruments to improve medical retention in the United Kingdom. Organisational changes might however be difficult to implement. Introducing flexible working hours or increasing work autonomy is likely to meet some resistance and face bureaucratic difficulties in many organisations.

### *3.1.5. Improving retention in remote and underserved areas*

92. Virtually all OECD countries suffer from a geographical maldistribution of their health workforce between rural, remote or poor areas and urban, central, and rich localities. The largest disparities in doctors per capita between the best and least-endowed regions are found in the United States and in Turkey, where the regions with the highest densities may have up to 2.5 and 2.2 times the national average, respectively (Chart 13). Unfortunately, data on regional variation in staffing levels are not adjusted for need, making it impossible to judge to what extent differences may reflect variation across areas with unequal needs.

**Chart 13. Regional variations in physician density**  
Percentages of national average, 2004



Note: Each point above refers to the density of doctors in one particular region relative to the average density in the corresponding country. Regions located under (resp. over) 100% have a density of doctors which is lower (resp. higher) than the national average.

Source: Regions at a Glance, 2007

93. Financial incentives to improve geographical maldistribution of doctors seem to generate mixed results. Wage is one of the most frequent reasons for international migration, especially between lower and higher income countries (WHO, 2006). However, programmes offering higher remuneration for doctors and nurses locating or moving to underserved, deprived, or rural areas tend to have a short-term impact but no lasting effect in the medium to long term (Bourgueil *et al.*, 2006). It is also unclear whether pay-related policies are more or less costly than other educational or regulatory approaches (Simoens and Hurst, 2006).

94. As in the case of financial incentives, many of the policies to address geographical imbalances have tended to have only a short term impact. Australia, Canada, the United States and New Zealand have developed minimum-stay requirements for immigrant doctors or locum programmes to attract foreign health professionals to underserved areas. Moreover, though migrant health workers are indeed willing to address OECD problems of maldistribution and undersupply, few appear to be retained in areas of need once permanent status and/or unconstrained registration has been achieved, a pattern ensuring that fresh global intakes are regularly required. Also, large short-term inflows do not allow the continuity of practice in the medium to long term, and have high turnover cost in terms of recruitment and training.

95. Increasingly, OECD countries have adopted measures to improve medium and long-term retention in rural areas. They have encouraged student interest in working in rural areas during basic training, or improved professionals' skills for working in these areas, or better identified students most apt



to work in rural areas. Students originating from remote areas are more likely to go back to practise in their origin regions. Recently, New Zealand medical schools have increased their entry quota to allow more students from rural areas in medical schools. In Canada, the province of Ontario established a new medical school -- the first in 30 years -- in 2005, with a curriculum focusing on practice in rural and under-served areas

96. Policies have also sought to prevent isolation of health professionals and to improve lifestyle. They have included measures to encourage collaboration and coordination between health professionals in rural areas, facilitate professional development, and help spouses to find a job (Bourgueil *et al.*, 2006). However, addressing staffing shortages in underserved areas requires a mix of policies which go beyond the health sector. For example, these areas do not offer minimum services (e.g., schools) and job opportunities for partners.

### 3.1.6 Reducing violence at the workplace

97. Violence against health professionals, in particular women, is a growing phenomenon<sup>17</sup> which has however not captured much attention so far (Dalphond *et al.* 2000). Some studies suggest a direct link between aggression and the increases in sick leave, burnout and staff turnover (Farrell 1999; O'Connell *et al.* 2000).

98. Initiatives to reduce violence have started to appear in some OECD countries. In the United Kingdom, the NHS initiated a *Zero Tolerance* campaign in 1999 -- later replaced by the Security Management Service -- to better protect NHS staff and property. Among the most common measures implemented to reduce violence are the introduction of closed circuit television surveillance, controlled access to certain areas, security guards, and better lighting.

### 3.1.7. Developing flexible retirement policies

99. As has been mentioned above, the ageing and the feminisation of the health workforce will have a significant impact on future retirement trends in the OECD. In many countries the "baby boom" generation account for a substantial share of the workforce, and many will reach retirement age within the next 10 to 20 years. Until recently, few OECD countries had implemented or planned specific policies to address this issue (Simoens *et al.*, 2005). In fact, until the late 1990s, it was common cost-saving strategy for employers in some countries to offer early-retirement incentives to nurses.<sup>18</sup> Furthermore, the feminisation of the medical workforce is likely to reinforce these trends, as women health professionals tend to retire earlier than their male counterparts.<sup>19</sup> In some OECD countries, the yearly number of retirees has already been close to that of graduates and retirement rates will increase in the future<sup>20</sup>.

100. More flexible working patterns that allow health professionals who have reached pensionable age to continue to work and receive pension benefits may encourage them to delay retirement. In the United

<sup>17</sup> Violence can reach a large proportion. In Sweden, health care has even been recorded to be the sector with the highest risk of violence (Chappel and Di Martino, 1999).

<sup>18</sup> For example, in France, 2,900 doctors left the profession in 2004 while 3,500 graduated (Cash and Ulman, 2007). In Italy, a country with a lower nurse density than the OECD average, around 12,500 nurses retired each year between 1997-2002, whereas the yearly number of new graduates amounted to 5,700 during that period (Camerino, 2006).

<sup>19</sup> In Germany, only 6.2% of qualified nurses were 55 years old and over in 2002, compared to 11.1% for female workforces as a whole (Hasselhorn *et al.*, 2006).

<sup>20</sup> In Australia, for example, the nursing retirement rate will be significantly higher between 2006 and 2026, than it was between 1986 and 2001. Between 2006 and 2026 Australia is projected to lose almost 60% of the current nursing workforce to retirement (Schofield, 2007).

Kingdom, a flexible-retirement initiative launched in 2000 enabled staff nearing retirement to move into part-time work while preserving pension entitlements (Simoens and Hurst, 2006). In France, doctors who reach the statutory pensionable age can combine a pension and earnings up to an income limit. Also, elderly doctors can be exempted from night and week-end shifts (Cash and Ulman, 2007). In Belgium, a number of hospitals have experienced better nurse retention by allowing those aged 55 years and older to work 32 hours while still earning the wage corresponding to 40 hours (Peterson, 2001).

101. Strategies to improve retention should address modification of the mix of tasks performed by “older nurses”. In Canada, for example, nurses have one of the highest sick-leave rates of all workers. These are mainly attributed to work-induced stress, burnout and musculoskeletal injury, which are likely to affect older nurses in particular (Shamian *et al.*, 2003).

102. Finally, many OECD countries are debating changes in the statutory pensionable age. While such an approach could contribute to alleviate shortages to some extent, this measure, if adopted, will take time before it fully deploys its effects.

### **3.2. *Enhancing integration in the health workforce***

103. Immigrant health workers who cannot practise their profession in the destination country and doctors and nurses dropping out of the health labour market (other than those reaching retirement age) represent a loss of skills. OECD countries might benefit from addressing the process of recognition of the diploma of foreign-trained health professionals, as well as from designing policies to recruit back domestically-trained health workers who have left the workforce.

#### *3.2.1. Better recognition of foreign diplomas*

104. As a prerequisite for practice, health professionals must meet registration or licensing requirements. This guarantees the educational and practice standards which are needed to promote patient safety and high quality of health care delivery. To obtain registration, foreign-trained doctors and nurses must obtain recognition of their qualifications. Despite common features, OECD countries have adopted somewhat different approaches towards such recognition (Box 6). Recognition procedures are necessary to ensure that practice standards are met when foreign professionals are absorbed into the health workforce. However, they may also serve as a means to control unwanted inflows of foreign-trained health workers.

Errors in effective recognition are costly

105. The process of recognising foreign qualifications is complex and can lead to significant inefficiencies due to errors in targeting.

106. A first important inefficiency, although not discussed in depth in this paper, concerns accepting qualifications which are invalid. Errors in this direction risk endangering patients’ safety and, ultimately, would damage health outcomes. Much of the delays, rejections, and scrupulous screening involved in the process of recognition of foreign qualifications have to do with preventing these errors. Clearly, other policy objectives may play a role in the process, too. For example delays in recognition may be shortened or criteria relaxed depending on the state of the domestic job market, as emerges from the experience of the United Kingdom (Buchan, 2007).

107. Second, rejecting (or failing to recognise) qualifications which are valid may induce qualified health professionals to work in low-pay or low-skill occupations, below their level of qualification. This loss of social status and, often, financial resources, can produce lower motivation for health professionals and difficulties in societal integration. It also produces a waste of qualified skills. Little evidence is available on the scope of this *brain waste* in the medical field and even more on its economic impact. The Conference Board of Canada estimated that the lack of recognition of professional credentials of new

Canadian immigrants causes a loss of productivity of about 2.3 billion Canadian dollar (von Zweck and Burnett 2006). While this estimate is not specific to the health sector, it illustrates the magnitude of the potential opportunity cost and human capital loss associated with the lack of recognition of qualification.

**Box 6. Approaches to the recognition of foreign qualifications**

After verifying credentials, health professionals need to satisfy language tests, and theoretical and practical licensing exams.<sup>21</sup> In some countries, for instance in New Zealand or the United Kingdom, the required level of language proficiency has been increased, which can have a direct impact on inflows of foreign-trained doctors and nurses. Some countries may require a period of adaptation or initial supervision, as for example in the United Kingdom, Finland and Ireland.

Requirements tend to be less restrictive and recognition of qualifications is therefore facilitated within free mobility areas (e.g., the Nordic Passport Union, the Trans-Tasman Area, the European Union). For example, under the legal framework adopted by the European Union, medical professionals' training certificates obtained in one member state are recognised automatically in other member states.

Some OECD countries adopt simplified procedures leading to temporary or conditional registration of health professionals, for example when skills are considered as near-equivalent (the Netherlands) or when health professionals entered the country as temporary migrants and through sponsoring schemes (Australia). In New Zealand, provisional registration is offered to individuals who worked continuously for at least 3 years in a health system considered as comparable (Zurn and Dumont, 2007).

At the other end of the scale, some countries require foreign-trained professionals to: obtain national postgraduate qualifications (e.g., Canada); complete internship periods and postgraduate residency training (e.g., the United States); or to acquire citizenship of the host country (e.g., Italy, Finland, Greece, Turkey and Luxembourg)<sup>22</sup>. These requirements delay entry or reduce inflows of foreign-trained professionals into the health workforce of the host country.

Strategies to ease integration difficulties

108. Several countries have employed specific programmes to attract foreign-born health professionals and put their skills to work. The Canadian government has recently allocated \$C75 million to fully integrate 1000 physicians and 500 other health care professions in the next 5 years, while Australia has funded competency-based bridging programs for the past 20 years, achieving highly efficient outcomes in nursing (Hawthorne, Hawthorne & Crotty 2007; Hawthorne 2007). The Canadian government has also invested in efforts to streamline the process for verifying the credentials of international medical graduates, and enhance information by creating a national database about international medical graduates. In Portugal, a relatively small programme supported by non-governmental organisations assists immigrant nurses in obtaining the equivalence of their educational and professional diplomas.

109. Refugees face particular difficulties in having their medical qualification recognised, notably because of lack of language proficiency and absence of relevant documents. The United Kingdom has implemented special programmes to help refugees and overseas qualified health professionals who are settled in the United Kingdom to pass qualification requirements (Butler and Eversley, 2005). Similar initiatives exist in the United States and other OECD countries (Dumont and Zurn, 2007).

<sup>21</sup> For example, the national licensing examination for registered nurses in the United States, or the registration examination (the NZREX clinical) for doctors in New Zealand.

<sup>22</sup> In France, despite the fact that the Public Health Code mentions a criteria of nationality (Art. L-4111-1), in practice many foreign doctors are working in public hospitals. Most of them used to be working under precarious contract arrangements as trainees. An important effort has been made recently to regularise their professional status (about 9 500 authorisations have been delivered by the Health Ministry since 1999), and a new procedure has been implemented for recognition of qualifications of foreign-trained doctors (Ordre des Médecins, 2006).

110. Policies have also addressed social factors and practices that militate against the integration and retention of foreign-born health professionals into society and work (Box 7). These programmes facilitate the integration of immigrants and internationally trained health professionals into the labour force, although no evaluation of their cost effectiveness is available.

**Box 7. Retention of foreign-born health professionals**

While there is no reason why foreign-trained health workers should behave any differently from domestic trained health workers, in practice they often face specific difficulties that might contribute to recruitment and retention problems.

Social and cultural factors may play a role in the retention of overseas nurse graduates (Omeri, 2006). In the United Kingdom, for example, foreign-trained nurses encounter language problems, are confronted with differences in clinical and technical skills, and may face open racism in the workplace (Buchan, 2005). Many may choose to change job or re-migrate.

In some cases, existing practices may make it more difficult for foreign-born professionals to remain into the labour market. For example, contractual arrangement with foreign-trained health workers might be used to fill in temporary shortages or address turnover. In other cases, contractual arrangement may improve retention. In the United States, some hospitals contract agencies to recruit foreign-trained nurses and will benefit from the agency's insurance of full or partial remuneration if recruited nurses fail their contractual obligation (Brush *et al.*, 2004).

Most countries do not have specific retention policies for foreign health workers, even when the latter represent a large share of the health workforce. Policies aiming at matching skills, improving language knowledge, and helping migrants in their new social and cultural environment could thus be very beneficial. Some public institutions hire private companies to address some of these issues. For instance, the Royal Danish Armed Forces contracted a private company to recruit doctors from Poland. In this process, intensive Danish language training as well as professional and cultural adaptation is provided during several months before starting working in Denmark (Paragona, 2006).

*3.2.2. Recruiting “back” health workers*

111. Evidence on policies to “recruit back” health workers who have left the health profession is rather scarce. However, some recent experience suggests that such policies could make a difference, especially for nursing. This has given rise to growing policy interest on the topic.

The ‘pool’ of inactive nurses

112. While the potential to recruit back doctors seems limited in most OECD countries because the number of inactive doctors is relatively small, the pool of inactive nurses is larger (Gupta *et al.*, 2003).

113. In New Zealand, for instance, around 14% of the Registered Nurses (RN) and Midwives in 2000<sup>23</sup> were neither in a nursing or midwifery job, nor in paid employment. This percentage was even higher for enrolled nurses (New Zealand Health Information Service, New Zealand Nurses and Midwives 2000, NZHIR, 2002). In the United States, almost 17 percent of licensed Registered Nurses<sup>24</sup> were not employed in nursing as of 2004 (USDHHS, 2006). This was the lowest percentage of inactivity since 1980, but it represents nonetheless a significant outflow from the nurse stock (Aiken, 2007). Although almost 40 percent of these inactive nurses were aged 60 years or above -- and thus did not have good prospects for returning to active employment – the potentially employable group of RNs below the age of 50 totaled approximately 160,000 individuals. Considering the total number of vacant positions for Registered Nurses

<sup>23</sup> Or around 6,000 individuals who purchased an Annual Practicing Certificate.

<sup>24</sup> Or 488,000 Registered Nurses.

in hospitals of around 116,000 (AHA, 2007), policies to attract back nurses would seem to have a high potential.

114. Given the cost of training nurses, it is likely that the benefit of policies to recruit back nurses would more than outweigh cost. Furthermore, a relatively large percentage of inactive nurses seem to be interested in returning to practise. In New Zealand, for example, over three quarters of inactive nurses and midwives would consider returning to clinical work.

115. However, few countries have developed specific policies to attract nurses back to the profession and, where implemented, strategies have not proved an easy task. In the United Kingdom, the National Health Service Plan encouraged the return of qualified nurses by providing back-to-practice courses, improved work-based learning, additional nursery facilities, and mentoring to nurses returning to work (Secretary of State for Health, 2000). Over the past few years, the annual number of nurses and midwives returnees is estimated around 3,800 or 1% of the total number of qualified nurses and midwives, but there is no indication of any upward trend (Buchan, 2007).

116. As in the case of retention, policies to encourage return of health professionals to the health workforce would need to encompass a mix of financial incentives, career development programmes, and targeted benefits. Some of the main factors that would facilitate attracting nurses back to the clinical workforce include more flexible hours of work, availability of return-to-work programmes, salary increase, and provision of child care facilities (Zurn *et al.*, 2005). Ireland abolished fees for back-to-practice courses, and nurses and midwives undertaking such courses receive a salary in return for a commitment to rejoin the public health service upon completion of the course. In addition, many of the courses are being delivered on a flexible part-time basis (Department of Health and Children, 2002). Trends over time also suggest that a weak economy encourages nurses to re-enter the health workforce (Aiken and Mullinix, 1987).<sup>25</sup>

### **3.3. *Adapting skill-mix***

117. Most of the policy attention on using skill-mix<sup>26</sup> changes to improve health-system performance focuses on physicians and nurses. Task shifting between nurse and doctors can improve productivity. However, changing the skill-mix is a challenging task, particularly because of the need to secure the cooperation of the professional groups concerned.

#### *3.3.1. Large cross-country differences in the skill mix*

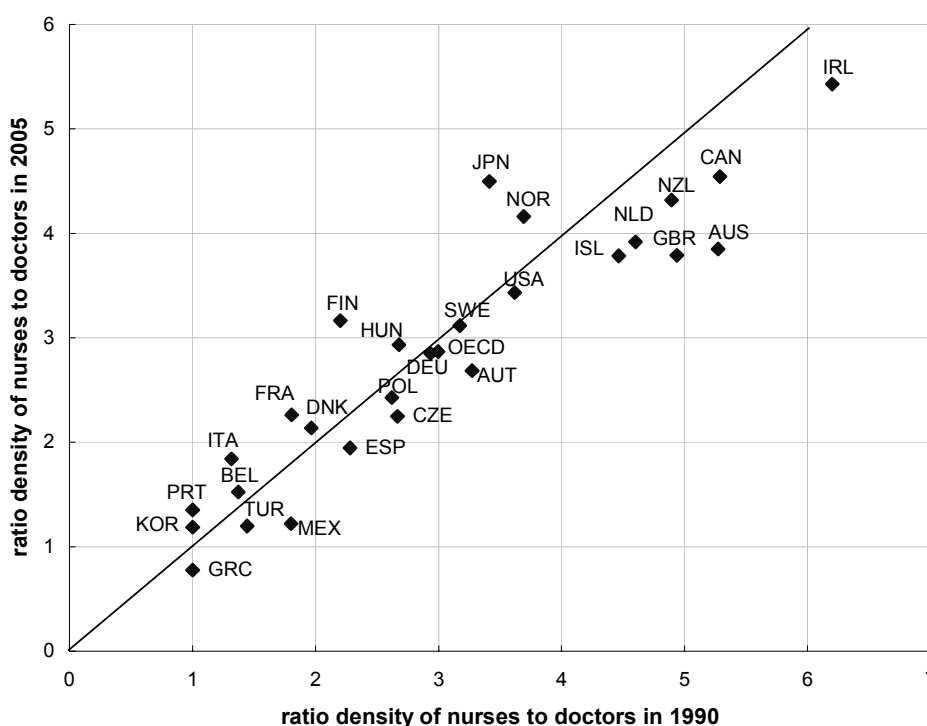
118. Greece, Korea and Turkey have roughly the same number of doctors and nurses, while in Ireland there are more than 5 nurses for each doctor. Between these extremes, the ratio of nurses to doctors varies widely across the OECD. Given such variation, it is legitimate to question what should be the appropriate skill-mix between doctors and nurses, and what should be the definition of the respective tasks of these two groups of professionals.

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<sup>25</sup> In the United States, for example, inactive nurses returning to work along with nurse immigration accounted for a substantial share of the growth of the employed nurse workforce over the period 2000-2003 following a period of decline in nurse graduations (Buerhaus, Staiger, & Auerbach, 2003)

<sup>26</sup> Skill mix' is a relatively broad term which can refer to the mix of staff in the workforce or the demarcation of roles and activities among different categories of staff.

Chart 14: Change in skill mix between 1990 and 2005 (or nearest year available)



Note. Data refers to practising doctors and nurses  
Source: OECD Health Data 2007

119. One of the factors which may have affected the growth of density of both doctors and nurses is substitution between them, usually in the form of nurses taking over some of the tasks hitherto performed by doctors. Nurses have been substituted for doctors in a small way in some OECD countries (see for example, OECD 2004). However, as has been shown above, physician numbers have been growing faster than nurse numbers in the majority of OECD countries over the past 15 years. Chart 14 suggests that in 17 out of 28 countries for which data are available the ratio of nurses to doctors in 1990 was above that in 2005 (that is, in Chart 14, the observation for the country is found to lie below the 45° line). This suggests that technological and economic changes have added more to the demand for doctor-skills than to the demand for nurse skills in these countries over this period.

120. Literature reviews of the role of advanced practice nurses (APNs) suggest that nurses can supply care equivalent to that provided by doctors in primary care settings for certain patients. However, the long term benefits or cost from such policies are not yet clearly established (Buchan and Calman, 2004).

121. Physician assistants are predominantly located in the United States, where this profession was introduced in 1967 (Hooker, 2006). Other OECD countries such as Canada, England, Scotland, Australia, New Zealand and the Netherlands have explored the potential of using physician assistant to deliver tasks usually carried out by doctors. Studies revealed that physician assistants' skills largely overlap with those of primary care physicians, and they are capable of taking on a high degree of responsibility in other areas of medicine (Hooker, 2006).

### 3.3.3 Overcoming challenges

122. While there seems to be a potential for developing new nursing roles and to encourage the use of physician assistants, various factors can hinder this change. Introducing new scope of practice can “blur” frontiers between professions and create tension between, and even within, occupational groups (Kinley *et al.*, 2001). It is not uncommon for professional associations to resist changes in professional boundaries. Institutional factors may also slow down the development of advanced nursing roles. For instance, few countries allow nurses to be reimbursed directly for the new services they provide. Also, given the context of nursing shortages and task shifting, increasing the number of nurses in advanced nursing roles might encourage them to offload tasks to unqualified staff further down the line (Buchan and Calman, 2004).

### 3.4. *Enhancing health workforce productivity*

123. Improved productivity of physicians and nurses in the workforces can help coping with upcoming gaps between the demand for and the supply of health professionals. Estimates of productivity are an important adjuster in models of workforce supply and part of increasingly more sophisticated demand-based and trend forecasts of health professionals (Cooper *et al.*, 2002). All other things being equal, improved productivity of human resources would reduce the number of health professionals needed to achieve a given output, or improve throughput delivered with a given level of resources. But, what is the right indicator of productivity, and is it possible to point to an optimal productivity level?

124. There are several challenges related to the concept of productivity. Different indicators of health professional activity and outcomes can be used to measure productivity. This will influence assessment of whether health systems face shortages or, conversely, oversupply of medical professionals, and the related policy responses.

125. Take, for a start, traditional approaches to evaluating health professionals’ productivity, which have measured the rate of activity (e.g., doctors visits) produced in a given period of time by each unit of labour. OECD countries have implemented several policies to address productivity in this respect, including changes in payments methods, improved working conditions, and changes in technology or in the way care is organised and delivered (Box 8).

**Box 8. Factors and practices influencing professionals' productivity**

Productivity changes over time, as a consequence of external factors and countries' policies. Technological innovation is an important source of change, and potential advances in productivity for both nurses and doctors. For example the introduction of day surgery, favoured by technological improvements, led to an increase in the number of surgical procedures that given hospitals and surgery units could perform. .

Several workplace and societal changes have a direct impact on productivity. New lifestyle models encourage a better balance between work and private life, leading to shortened working times for health professionals. Earlier retirement by doctors and nurses, as well as increasing part-time working, have a similar effect. In the United Kingdom, while less than 40% of midwives were working part time in 1994, in 2004, more than 60% were working part-time.

|      | Number working full time | Working full time, per cent | Number working part time | Working part time, per cent | Total number of working midwives |
|------|--------------------------|-----------------------------|--------------------------|-----------------------------|----------------------------------|
| 1994 | 20,889                   | 59.5                        | 14,238                   | 40.5                        | 35,127                           |
| 2004 | 12,999                   | 38.6                        | 20,688                   | 61.4                        | 33,687                           |

*Source: Statistical Analysis of the Register, Nursing and Midwifery Council, August 2005*

Source: Bosanquet et al., 2006

Women tend to work fewer hours than their male counterparts during childbearing years and take career brakes, but evidence reviewed by Bloor and colleagues (2006) suggests that women doctors may be less likely to take early retirement. Workforce productivity will show differences across age groups for man and women. Clearly, these factors may vary productivity over a working life time, but will not impact upon productivity per hour worked.

Changes in the way care is delivered and organised, including the mix of human and non-human resources that provide health services, affect productivity trends. For example, the growing number of elderly patients with chronic illnesses encourages a reorientation of the way care is delivered from cure to care, requiring a different mix of physicians and non-physician health professionals. The successful adoption of new disease management models and of improving care-coordination methods will affect professionals' productivity in these care settings.

Health policies can help in boosting productivity, too. Nurse dissatisfaction and low motivation have led to high turnover and absenteeism. This, in turn, causes reductions in productivity and poor quality of care. Several countries have targeted policies to improve working conditions (including reductions in work intensity) to encourage nurse productivity and reduce turnover (Simoens et al, 2004) (see section 2.2.1).

Payment methods and levels are the most prominent policies to influence productivity of health professionals. Across the OECD, remuneration methods for hospitals, physicians, and other providers have moved away from cost-reimbursement towards activity-based payments that reward productivity (OECD, 2004). Among single payment methods for physicians, fee-for-services – as in the case of office-based physicians in Austria, Belgium, France, Germany, Japan, Korea, Switzerland and the United States (Medicare) – are known for encouraging productivity

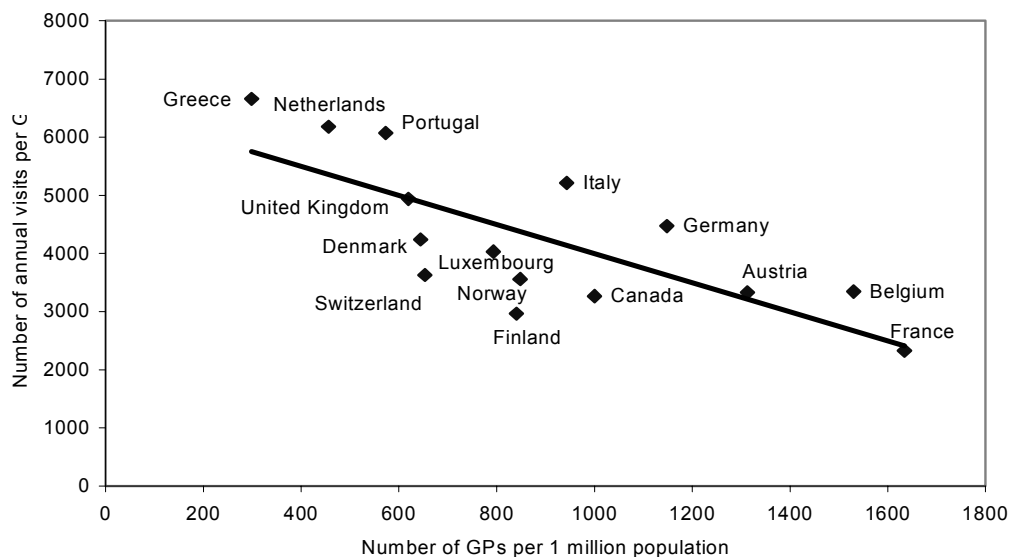
While encouraging productivity, pure activity-related payments may not direct providers to deliver the right quantity and quality of service, and at the right time. For this reason, several countries have introduced blended payment mechanism (which combine a fixed capitation or salary component with a variable fee-for-service element) to promote the provision of cost-effective care. Mechanisms of payment by results (which link payments to the quality of care provided) have also been introduced to reward physicians for the quality of care provided to patients in Australia and in the UK (Simoens and Hurst, op. cit.).

126. Using this notion, it appears that the quantum of professionals' supply can be related to productivity levels. Analyses of variation in per capita supply of health professionals across countries, regions, and health-care settings suggest for example that physician productivity may be related to the density of doctors, all other things being equal. Using data from the European Community Household Panel (ECHP) Survey on the annual number of patients' visits to general practitioners (GPs) across the EU (15), chart 15 shows a negative, statistically significant, relationship between GP density and the number



of visits per doctor. In other words, countries featuring a higher density of doctors appear to have a lower productivity of doctors, as measured by the number of annual visits per doctor.<sup>27</sup> Furthermore, countries with the same number of physicians, such as Switzerland, Denmark and the United Kingdom, display large differences in the number of annual visits, suggesting room for improving productivity.

Chart 15 The relationship between general practitioner density and the annual number of visits per general



Source: Simoens and Hurst, 2006

127. Supply constraints, if coupled with improved and carefully administered payment systems, have led to enhanced productivity (Docteur and Oxley, 2003). In Finland, sharp cuts in health expenditure in the early 1990s did not seem to have harmed efficiency. On the contrary, they were associated with rises in health centre productivity, measured as activities per unit of real expenditure (OECD 2005a). In Switzerland, per capita consultations with doctors' – at 3.4 in 2002 – were lower than the OECD average of 9.7, while the number of doctors – at 3.6 per 1000 population – was among the highest in the OECD. Although this may reflect a relatively low revealed demand for health-care services and a relatively good underlying health status of the population, the data also suggest that the same levels of outputs could be achieved with lower resources (OECD, 2005b).

128. That high physician supply is associated with lower productivity has emerged also from analyses of regional and practice-setting variation in per capita supply. For example, work by Wennberg and Cooper (1998) shows that the use of health care services varies dramatically around the United States. These variations are not associated with substantial differences in benefits to the patients. Variation in Medicare spending across US regions – which can be linked to higher-intensity of practices in regions with a higher density of doctors – did not result in better quality of care, or improved health status (Fisher et al., 2003). Similarly, low physician/patient ratios were associated with good health status, as shown by research on large prepaid group practices in the United States (Weimer, 2005).

129. These studies suggest that, up to a point, low physician's input can come with improved productivity with no harm to patients. They also suggest that improving regional misdistribution of professionals across better-served and least equipped areas, as well as more equitable distribution of

<sup>27</sup> Unfortunately, it is not possible to control for visit duration.

professionals across specialties, may go a long way in addressing supply gaps.<sup>28</sup> And, thirdly, they point to the fact that more adequate measures of results are needed. The notion of measuring health professionals' services as the output of medical work may need to be questioned.

130. At present, the output of doctors' work is usually measured by the number of office visits and procedures, a notion similar to the way productivity is calculated in industrial firms. However, physician productivity should be based on improvement of patients' health and responsiveness – the end – rather than physician visits or procedures – the means to the end. Such an approach could be used to incentivise health care workers to provide more adequate care to patients.

131. Improvements in patient outcomes could be achieved by doing less rather than more. Larger services volumes may in fact be of marginal benefit in terms of improved value for money and patients' health. For example, population based research suggests that above a certain threshold, as use of service increases, quality and health related outcomes do not improve (Weiner, 2007).

132. On the other hand, a low staff/population ratio can lead to adverse health outcomes if a minimum ratio is not achieved. Very low numbers of doctors can be harmful, as shown for example by analysis on the adverse impact of low supply of neonatal intensive care resources on outcomes (Goodman et al, 2001). Needleman et al. (2001) estimated that higher nurse/patient ratios in the United States were associated with a 3% to 12% reduction in the rates of outcomes potentially sensitive to nursing, such as urinary tract infections and hospital-acquired pneumonia.

133. Unfortunately, the overall evidence is far from being conclusive and it is especially difficult to make inferences about optimal supply levels to maximise people's health. A review of the literature on associations between medical staffing and patient health outcomes concludes that although improvements in patients' outcomes might be possible by expanding doctors' supply, the optimal doctor-to-population ratio is not known (Bloor et al., 2006). Part of the problem lies with difficulties in the measurement of outcomes and quality of care, a developing field.<sup>29</sup> Another difficulty lies with the fact that the notion of the right measure of productivity will depend on broader health-system objectives, which may evolve over time. The desire for more health-system responsiveness, for example, may explain at least part of the apparent association between economic growth and physician numbers. Finally, even assuming the right measures have been developed, mechanisms aligning rewards to the performance of health professionals, are not without risks. Initial results from the United Kingdom's Quality and Outcomes Framework (QOF), for example, suggest that both quality improvement and the payments to practitioners exceeded initial expectations, straining the National Health Service (NHS) coffers (Robert Galvin, 2007; NAO, 2007).

134. In summary, improvements in health professional productivity have the potential to reduce the rate at which human resources should grow in order to meet future demand expectations. At one extreme, if productivity enhancement occurs at the same rate at which the demand for professional services is growing, then the pressure to build larger stocks of health professionals would disappear. Arguably, other policies such as a better distribution of resources across a country may suffice or at least contribute to meet needs. However, given much uncertainty about the optimal health professionals' ratio to the population, it would not be prudent to count solely on increased productivity to address future needs. Furthermore, questions about the most appropriate way to measure outputs have surfaced. Policy makers should be

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<sup>28</sup>As shown in various studies on the U.S. and the U.K., but doctors tend not to settle where care is most needed. See, for example, Goodman et al. (2001) and Greville and Sutton (2001).

<sup>29</sup> The OECD is pursuing a project to develop a set of health care quality indicators based on comparable data across 23 countries ([www.oecd.org/health/hcqi](http://www.oecd.org/health/hcqi)). This will help to fill existing gaps in the measurement of health care quality across countries.

aware that new concepts based on outcomes and responsiveness may change the way productivity is calculated, and hence the way future needs are assessed.

***Summary of the main findings of Section 3***

135. This section has discussed the contribution of health workforce policies to make the best use of available workforce and skills. A better use and mobilisation of available health workforce skills is possible through a portfolio of policies, including: improving retention, enhancing integration, developing more efficient skill mix, and improving productivity. Some examples of useful practices in these areas include the following:

- “Magnet hospitals” are a successful example in terms of nurse recruitment and retention. They are organizational settings characterised by an emphasis on professional autonomy, decentralised organisational structures, participatory management, and self-governance.
- Admitting more medical students from rural areas in medical schools is a policy with a positive medium and long term impact on the geographical distribution of doctors as such students are more likely to take up practice in rural areas.
- Providing flexible retirement policies and adapted work for older health workers can improve retention among older health workers, for example some countries have enabled staff nearing retirement to move on part-time work while preserving pension entitlements, or to combine pension and earnings for individuals reaching statutory pensionable age.
- Attracting back to the health workforce individuals trained as health worker but not active or working in another field has been adopted successfully in countries. For example, the return of qualified nurses is encouraged by providing back-to-practice courses in Ireland, and improved work-based learning, nursery facilities, and mentoring the United Kingdom.
- Special programmes assist the integration of internationally educated health care workers in countries like Canada, Portugal and the United Kingdom. In the latter, some programmes help refugees who are settled in the country to pass qualification requirements.
- Changing skill-mix by employing nurses and physician assistants to perform tasks traditionally delivered by physicians has been shown to be effective in some settings, although less is known about its cost-effectiveness.

136. Further work is however necessary to assess the opportunity cost of different policies and refine productivity measurement, thereby helping policy makers in trading off between different options.

#### **4. International mobility of health workers: interdependency and ethical challenges**

137. The increasing globalisation of the labour market (IMF 2007), especially for highly skilled workers, and the appearance of labour shortages for doctors and nurses in both OECD and developing countries, (WHO 2006), have heightened policy interest on the international mobility of health workers.

138. There is increased cross-country interdependence, both in terms of imbalances in the distribution of health human resources and in terms of management of health human resources. Specific conditions and policies in the health sector of a given country can affect directly or indirectly the health systems of other countries. Meanwhile, structural shortage of health personal in low-income countries, no matter their causes, could weaken health systems, and thus, in the long run, jeopardise global public health. International mobility of doctors and nurses can either ease or accentuate these challenges, depending on their scope, characteristics (e.g. origin-destination, occupations, duration) and their “side” effects (e.g. technological transfers, investment in human capital abroad, remittances).

139. This means that countries should not consider the management of health human resources in isolation. Rather they need to take into account the influence that other countries’ policies will have on their own health system, and vice-versa, as well as potential global impacts. This section identifies and discusses the main interactions across OECD countries, and between OECD and other countries (subsection 4.1). It then draws attention to possible policies for better sharing the benefits of the international mobility of health professionals and to ethical dimensions of international recruitment (subsection 4.2).

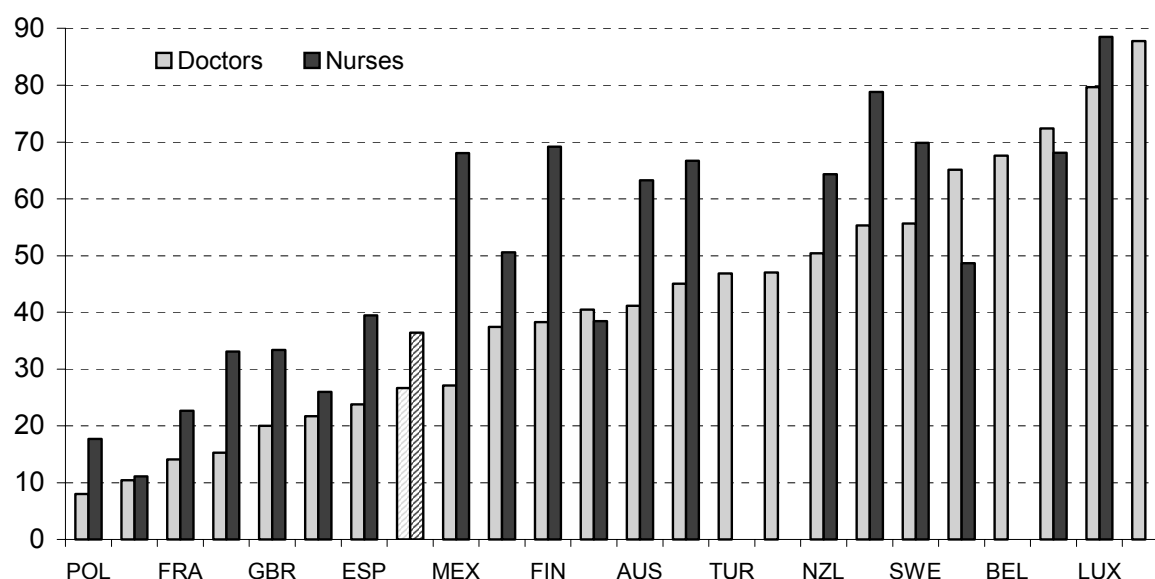
##### ***4.1. Cross-national impact of the international recruitment of health workers***

140. The growing international mobility of health professionals within the OECD, which can be depicted through a cascading model, calls for better monitoring and coordination tools across OECD countries. This would be especially critical if several OECD countries were to experience health workforce shortages simultaneously, as reliance on a selected number of abundant-supply origin countries might not be a sustainable solution.

###### ***4.1.1 Migration within the OECD: a cascading model***

141. Intra OECD movements of health professionals represent an important share of immigrant health workers (see chart 16). This is notably the case for nurses in Nordic countries, Ireland, Switzerland and New Zealand, and for doctors in Norway, Switzerland, Belgium or Austria. This finding, observed for stocks, also applies to recent trends in flows.

Chart 16. Share of foreign-born doctors and nurses originating from within the OECD area, circa 2000



Note: OECD weighted average

Source: International Migration Outlook, 2007

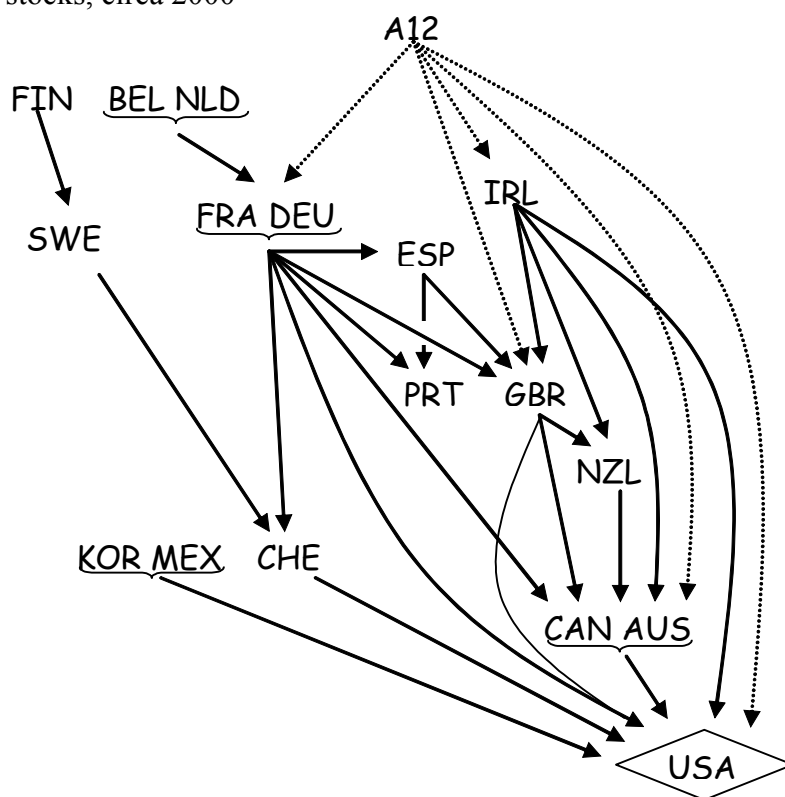
142. International mobility of health professionals within the OECD usually reflects general migration patterns, which are determined by language and geographic proximity, cultural and historical ties and bilateral migration policies. Such flows may generate interconnected migration channels, for example nurses move from the Slovak to the Czech Republic and from there to Germany, then to the United Kingdom and finally to the United States. In other cases, movements occur mainly within a limited group of OECD countries, for example across Australia, New Zealand and the United Kingdom in the case of doctors. Finally, some intra OECD flows are mainly bilateral. Migration between Mexico or Canada and the United States, or between France (in the case of nurses) or Germany (in the case of doctors) and Switzerland are an illustration.

143. Overall, a cascading, circular migration model can well illustrate the interactions between OECD countries (see chart 17 for nurses; the representation for doctors would be similar). Some countries appear as net receivers of health professionals vis-à-vis most other OECD countries, while others are predominantly net senders.

144. The United States is the only net-receiver country, i.e., it receives more health-professional immigrants than it sends emigrants to all other OECD country.<sup>30</sup> As a result, the United States is shown at the bottom of the cascading model. Canada, Australia, and Switzerland – also net receivers of health professionals from most OECD countries – are similarly positioned at the lower end of the cascade. In the case of Canada, however, the large nurse emigration to the United States generate a negative net intra-OECD migration (-6 000).

<sup>30</sup> The difference between OECD health professionals in the United States and US-born health professionals in other OECD countries is about 79 000 for nurses and of 44 000 for doctors.

Chart 17. Intra-OECD migration of nurses: a cascade-type pattern  
Net stocks, circa 2000



Reading note: Arrows represent a positive difference between the stocks of nurses in origin and receiving countries. Not all possible downward arrows are represented (for instance Finland has a net deficit with Sweden but also with Switzerland and the United States), but there would be no ascending arrows (for instance at the time of the population census Ireland has only a net gain with regards to new EU member states -A12- and the United States was the only country to have a net gain vis-à-vis all other OECD countries).

145. Intra-OECD movement of health personals is likely to continue, if not increase, in the near future. Several factors lie behind this trend, for example the persistence of historical rights; the development of free or facilitated mobility area, as the case of the European Union (Box 9);<sup>31</sup> arrangements to facilitate the recognition of foreign OECD qualifications; and the increasing intra OECD mobility of other categories of migrants (e.g. foreign students, highly skilled professionals and researchers, or intra company transferees).

**Box 9. The consequence of recent EU enlargement on health worker migration flows**

Although only partial evidence is available to date, the May 2004 and January 2007 European Union enlargements encouraged movements from “new” to “old” EU members. Between July 2004 and March 2007, the Worker Registration Scheme in the United Kingdom registered 585 hospital doctors, 350 dental practitioners, 1030 nurses (including 315 dental nurses) and 435 nursing auxiliaries and assistants as originating from the new member states (Home Office 2007). In Ireland, the employment of EU-8 nationals in the health sector doubled between September 2004 and 2005, from 700 to about 1 300 persons (Doyle *et al.* 2006). Data from origin countries confirm these trends. In Estonia, 4.4% of health professionals (61% of which were physicians) had applied for a leave certificate by April 2006. In Latvia, more than 200 doctors expressed their intention to migrate in 2005. Poland issued more than 5000 leave certificates to doctors (4.3% of the active workforce) and around 2800 to nurses (1.2% of the

<sup>31</sup> In addition, the European Union, the North American Free Trade Agreement, or the Tran Tasman Agreement between New Zealand and Australia.

active workforce) between May 2004 and June 2006 (Kaczmarczyk, 2006). A systematic analysis of the trends and consequences of these movements -- including for Romania and Bulgaria that have recently joined the EU and face even greater salary disparities with the EU25 group (Wiskow, 2006) -- would be welcome.

146. Due to cross-OECD interdependency, structural unbalances between the supply of, and the demand for, doctors or nurses, as well as specific policy changes, may impact the management of health human resources in other countries. New Zealand, a country with large immigration and emigration of doctors and nurses from and to other OECD countries, provides an interesting example in this regard. Changes in Australian and/or UK policies, respectively the main destination and source country, can have sizeable impacts on availability of human resources in New Zealand. Similarly, changes in the demand for immigrant doctors or nurses in the United Kingdom will directly effect migration from countries with which wage differentials are the largest, such as Poland, the Baltic States, Bulgaria and Romania. Because of its size and attractiveness, anticipated shortages in the United States, particularly for nurses, could have significant consequences for other OECD countries. Mexico, Canada, the United Kingdom and Germany, traditional source countries for health professionals in the United States, could be the most concerned.

147. Intra OECD movements of highly skilled workers, including health professionals, need to be monitored, if not anticipated, to avoid exporting shortages across OECD countries, and ultimately outside the OECD area. Cross-national interdependency requires better co-ordination mechanisms, including monitoring procedures, both within and outside the OECD area. These could be considered as part of bilateral or multilateral frameworks, and could involve mechanisms ranging from extended information exchanges to joint planning exercises. Better international monitoring of medical workforce flows, including migration movements by country of origin and training, graduation rates and movements out of the workforce (notably retirements) would help develop better pictures of overall health-worker flows, improve capacity to assess the impact of migration, and hence design adequate policies solutions.

#### 4.1.2. *Do large source countries offer the “cornu copiae”?*

148. As discussed in section 1, many OECD countries could simultaneously face health professional shortages. If migration were to play a significant role in addressing these shortages, one could expect a net inflow from the rest of the world to the OECD area. This scenario raises the question of whether migration from certain high-supply and low-cost countries would be an efficient solution for filling expected gaps in many OECD countries. Setting aside equity issues for a moment,<sup>32</sup> such a strategy does not promise to offer a lasting solution.

149. As OECD standards for health professionals are high, international recruitment could increasingly concentrate on a limited number of source countries. India and the Philippines, for example, already supply most of the foreign-trained doctors and nurses to the OECD,<sup>33</sup> notably to English-speaking countries. To the extent that these major source countries train health professionals for export, emigration does not decrease the pool of human resources in home countries.<sup>34</sup> Furthermore, because the cost of training is at least partly funded by the individual in India and the Philippines, the social loss borne by the

<sup>32</sup> See section 4.2 of this paper for a discussion of ethical issues and possible solutions.

<sup>33</sup> According to the 2000 censuses data, about 15% of the immigrant doctors in the OECD are originating from India and the same percentage of nurses were born in the Philippines. This pattern is even reinforced in recent flows.

<sup>34</sup> Some authors even argue that in such case, increasing migration opportunities would have a positive impact on the disposable stock of highly skilled workers in the source country (e.g. Stark, 2004; Beine, Docquier and Rapoport, 2007). If this may be true under very strict hypothesis (perfect market for credit, non selection process, low emigration rate ...), it certainly does not apply to most of the smaller or least advanced countries, notably in the context of health professionals where most of the training is at least partly publicly funded (see Dumont et Lemaitre 2005 for a critical review of the brain gain hypothesis).

community in home countries is minimised. International migration of health workers can then provide an opportunity for both the origin and the receiving country, as well as for the migrants themselves. However, to what extent are these examples transferable and sustainable?

150. The Filipino model for “exporting nursing schools” can probably be developed in other countries. However, further expansion in the Philippines is probably not possible. In fact, the Philippines is starting to experience difficulties in controlling quality of training, in recruiting teaching personnel who have access to attractive job opportunities abroad, and in maintaining high standards for patient-focused practice. In addition, Filipino doctors are retraining as nurses to get better opportunities for foreign work, so that the country effectively waste money training them.

151. Training doctors for export is also an option, but it would be especially complicated because the cost of training is high and success in the study less systematic. Supplying the world with graduate doctors paying the full cost of training in private institutions would require a large middle income class able to support expensive studies for their siblings.<sup>35</sup> Developing training capacity in medical schools and guaranteeing quality standards would also pose challenges.<sup>36</sup> Brazil, India and China are probably the most suitable candidates for such developments. “Medical cities” are already mushrooming in India and most of them include private medical schools.<sup>37</sup> However, the internal demand is also increasing rapidly and India still has a very low density of doctors (0.6 per thousand population).

152. Reliance on recruiting from such export countries clearly raises risks. OECD countries may compete for recruitment of health professionals from a limited number of origin countries. The latter would, as a result, face difficulties in expanding their training capacity to cope with rapidly increasing internal and external demand for doctors and nurses. Despite their size, China, India and Brazil might not represent an unlimited source of health professionals.

#### **4.2. *International recruitment of health workers: ethical concerns***

153. International migration of health professionals generates controversy over the relative advantages and risks for home countries. Concerns have been expressed that the costs for sending countries might outweigh the benefits, especially in the context of migration from poor countries -- nearly three-quarters of foreign-born doctors and two-thirds of foreign-born nurses originate from non-OECD countries. These are legitimate concerns, if one considers that health systems in developing countries are often fragile and undersized to cope with public health challenges.<sup>38</sup> However, to be useful for policy makers, the debate should be framed from a broader perspective. This is what this subsection attempts to do. After discussing briefly how workforce migration compares with the size of health professional shortages in source countries, this section reviews the impact of migration on human capital formation and health systems’

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<sup>35</sup> For example, in India, training costs for full-fee paying students is generally about 40 000 US\$. Cost of living and other costs should be added on top.

<sup>36</sup> The issue of quality could be addressed by developing partnerships through international medical schools. The campus created by Monash University in Malaysia for example offers equivalence to Australian standards (it graduates about 100 persons per year; undergraduate training for international students cost approximately 35 000 US\$ for 5 years full-time course; post graduate training costs about 22 000 US\$ for 4 years)

<sup>37</sup> The private sector accounted for 45% of the medical colleges in India in 2004 (10685 places), and grew by 900% between 1970 and 2004. This compares to 36% for public institutions over the same period, and a growth of only 20% (13320 places in 2004) (Mahal and Mohanan 2006).

<sup>38</sup> « *The African Region for instance suffers more than 24% of the global burden of disease but has access to only 3% of health workers and less than 1% of the world’s financial resources –even with loans and grants from abroad* » (WHO 2006).



capacity in those countries, and underpinning factors. It then reviews strategies and practices that have been proposed or implemented to address fairness concerns arising from international migration of health professionals.

#### 4.2.1 *The size of the brain drain in relation to global shortages*

154. OECD analysis suggests that international migration is not the main cause of the developing world's health human resources crisis, although it contributes to exacerbate the acuteness of the problems in some countries (Dumont and Zurn, 2007).

155. Health workforce shortages experienced by developing countries are far greater than the number of immigrant health workers to the OECD. The World Health Organization's estimates of regional health professional shortages largely outstrip the number of foreign-born health professionals who have emigrated to OECD countries. This means that even considering, as hypothetical as unrealistic, a scenario where migration from developing countries were to stop, these countries would still face up to considerable health human resource gaps to make the supply of health professionals match demand.

156. Africa is a compelling case. The magnitude of the workforce crisis in the continent is worrying. According to the World Health Report (2006), of the 57 countries facing critical physician shortages worldwide, 36 are found in Africa. Put it another way, over three quarters of the 47 African countries face shortages. According to WHO estimates, a 140% increase in the current stock of health professional would be required to meet demand in Africa. Yet, African-born health professionals working in the OECD area account for only 12% of the WHO's estimated need for doctors and nurses in the region (Dumont and Zurn, op. cit.). South-East Asia is another example. Six of the eleven countries in this region are plagued by critical shortages that, according to WHO estimates, could be filled in by doubling existing stocks of health professionals in the region. Yet, professionals born in the South-East Asian countries and working in OECD countries make up only 9% of estimated needs.<sup>39</sup>

#### 4.2.2 *Is health professional migration a threat or an opportunity for source countries?*

157. Several features of health professional migration influence how beneficial or detrimental this can be for sending countries, namely the size of the estimated needs for health professionals in home countries; the role of remittances; the duration of migration; and the split of training costs between origin and destination countries.

##### The size of shortages in source countries

158. Migration of health professionals from large developing countries will not have the same impact on origin countries as migration from small or impoverished countries facing significant health-professional shortages. At least this is what has been suggested by the OECD analysis (Dumont and Zurn, 2007) which has shown that the outflow of health professionals from large origin countries such as India, Russia or China – albeit large in absolute terms – remains low compared to their total workforce.<sup>40</sup> Furthermore, some countries with high expatriation rates manage to maintain relatively high density of health professionals at home. This is the case notably of countries which train for export, like the Philippines and a number of Caribbean States for nurses.

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<sup>39</sup> As to the Americas and Western Pacific, foreign-born professionals working in OECD countries outstrip estimated local needs, however the picture here is partially blurred by the fact that a large share of immigrants have been trained in OECD countries or are originating from a limited number of large countries.

<sup>40</sup> The expatriation rate of Chinese doctors is about 1% while that of India reaches 8%.

159. In the case of smaller countries, the situation may differ. Emigration decreases the ability to deliver quality care to the population and to provide quality training to remaining health professionals. Working conditions and motivation to stay for doctors and nurses who stay may also falter, adding to incentives to leave. Out-migration of health professionals, expressed as a percentage of health professionals who left the country, are especially high in Caribbean and African countries, notably Portuguese and French-speaking countries, but also Sierra Leone, Tanzania, Liberia and to a lesser extent Malawi (see maps x1 and x2).

Remittances mitigate the impact of the emigration of health workers only to a limited extent

160. Amongst the potential positive effects, remittances are often quoted as contributing to improve the health status of those left behind. Evidence is in fact quite mixed. A few studies using micro data tend to confirm a positive, although small and not always robust, role of remittances on the health outcomes of children.<sup>41</sup> In contrast, macro level analyses have found that emigration of women with tertiary education, many of whom will be working in the health sector, impacts negatively upon infant and under-five mortality rates in origin countries. This may suggest that the negative health impact deriving from the absence of qualified mothers is not offset by the positive role of remittances (Dumont, Martin and Spielvogel 2007).

161. Considering international migration of health professionals specifically, it is unlikely that the negative effects due to the departure of health personnel could be compensated, at the macro level, by remittances. The latter remain private money, which is often used for consumption and only in small part for saving and investment.<sup>42</sup> It does not contribute to health systems development nor compensate for the economic disruption caused by high rates of emigration. Furthermore, because health professional migrants are highly skilled workers who are more likely to come from wealthier families, remittances are unlikely to reach the poorest and of those most at risk in terms of health (e.g. only 6% of poor Mexican households receive remittances).

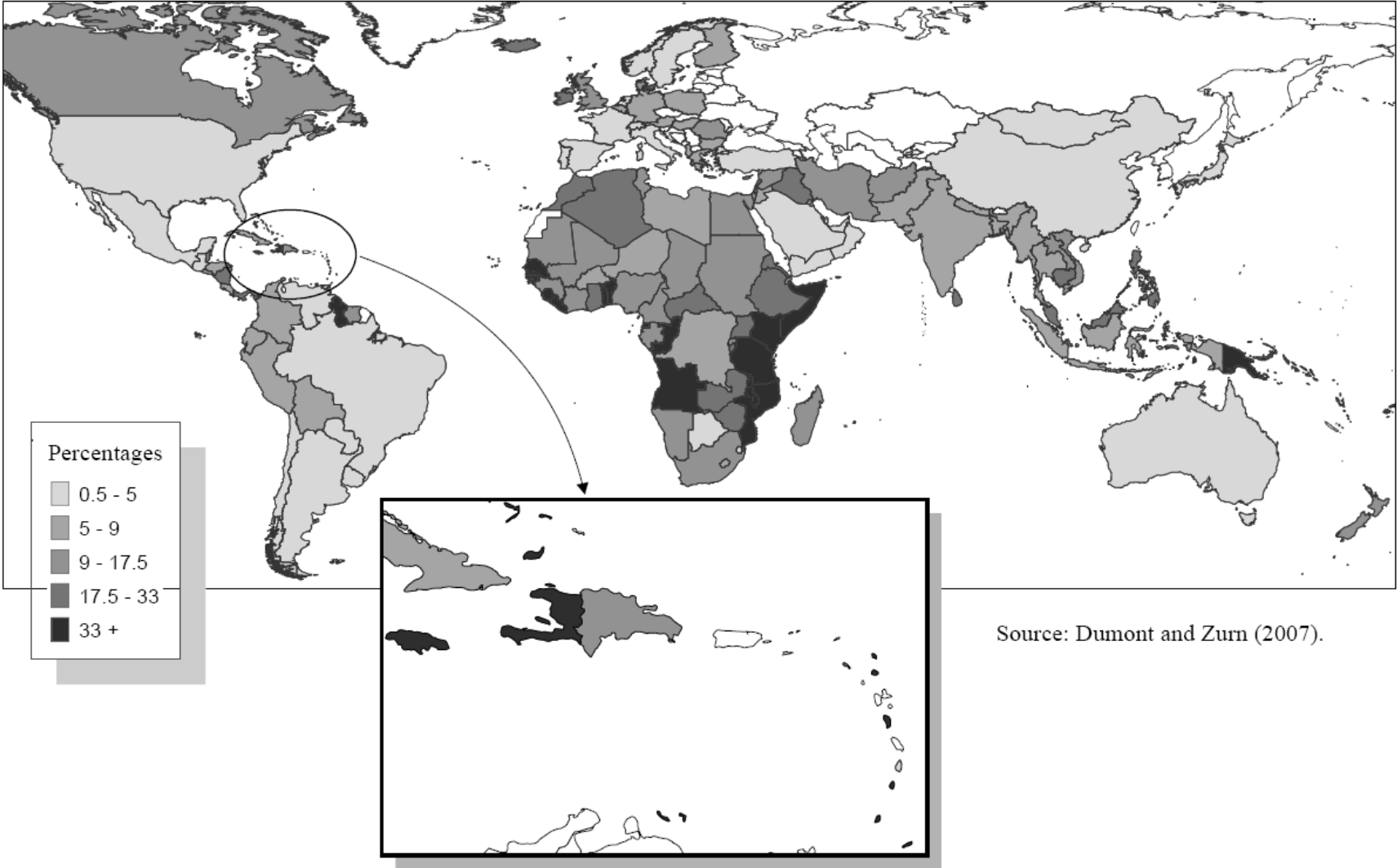
162. Previous arguments do not necessarily exclude positive linkages between remittances and the health sector, although these are neither automatic nor direct. The *tres por uno* program in Mexico, which supports community investment in local infrastructure, provides an interesting example in this regard.

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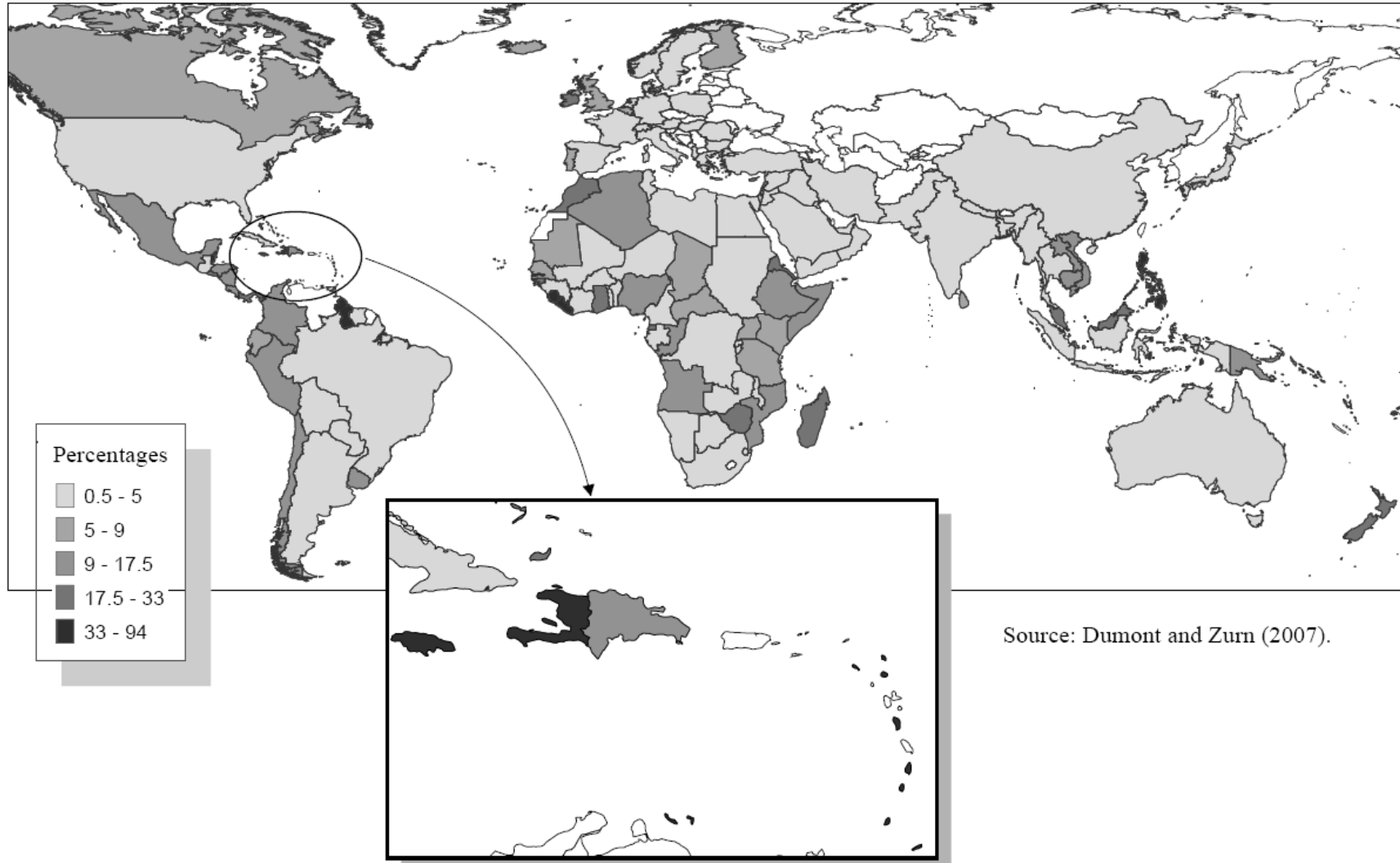
<sup>41</sup> The World Bank (2006) shows that, in the case of Guatemala, children from households that report receiving remittances tend to exhibit higher health outcomes than those from non-recipients households with similar demographic and socio-economic characteristics, after controlling for pre-migration income. Most results however do not hold for Nicaragua. Moreover, Adams (2006) finds no impact of international remittances on the marginal budget share on health expenditure in Guatemala. In the case of rural Mexico, Hildebrandt and McKenzie (2005) show that children in migrant households (not households receiving remittances) have lower infant mortality and higher birth weights.

<sup>42</sup> For this reason, comparing expected remittances sent by health professionals to the training cost supported by the public authorities would not be sound.

Map 1. Expatriation rates for doctors by country of origin  
Percentages, circa 2000



Map 2. Expatriation rates for nurses by country of origin  
Percentages, circa 2000



Source: Dumont and Zurn (2007).

Duration of overseas stays is critical to the potential impact on origin countries

163. The duration of stay of migrant health workers is another important feature that can influence how beneficial is migration to origin countries. Temporary migration may enable doctors and nurses to gain professional experience abroad, acquire exposure to new medical techniques, and upgrade their skills (assuming that they are not over qualified in their job and that their new skills respond to the most urgent health care needs in their home country). Permanent migration, on the other hand, represents a permanent loss of human capital for the home country and leads to added cost for recruiting replacements, which is unlikely to be compensated by financial flows back to the country. Constant and lasting outflows of health professionals potentially weaken national health systems, thereby reducing their capacity to provide the health care services needed by the population.

164. The *ex ante* distinction between temporary and permanent migration is however difficult to make in practice, notably because most OECD countries have made it easier to change from temporary to permanent status. Also, initial migration intentions may change over time as the health workers spend time and integrate in the receiving country.<sup>43</sup> The employers themselves do not always encourage high turnover of migrants, as this increases the fix costs for the recruitment and the integration of foreign workers. Finally, the transferability of the skills acquired abroad depends on the working and reintegration conditions in the home country. Some evidence suggests that health professionals returning to their origin countries may not have their new qualification recognised and are therefore effectively downgraded.<sup>44</sup>

165. Migrants will consider returning permanently to their origin country when the conditions which motivated their departure are no longer met. Surveys exploring health workers' reasons to migrate identify issues such as a safer environment, and better living conditions, facilities, career opportunities and remunerations (Awases 2005, Vujicic and al. 2004). The possibility to raise children in an international and high-quality school system also plays a key role. In other words, migration of health workers may be a symptom more than a cause of the deficiency of health systems in origin countries. These "social reasons" for emigration are not confined however to health professionals.

166. Return is not a necessary condition for health workers to contribute to the health system of their origin country. Beside remittances, diasporas play a role particularly when successful migrants visit their countries of origin for teaching activities and highly specialised medical interventions.

167. Developing countries also benefit, albeit on a small scale from paid and voluntary work by health professionals of OECD origin (Lakeman et al., 2007). OECD countries should support these initiatives, for example by adapting the workload of those involved and by recognising the value of the professional activities undertaken in the context of voluntary technical assistance.

Who pays for what?

168. A last element in a cost and benefits evaluation of health workers migration refers to training and education costs, and their financing. The loss sustained by home countries will be high if foreign professionals had received training at home, and even more so if training was publicly subsidised.

169. According to OECD analysis, comparisons of health professional migration reveals lower percentages of foreign-trained professionals compared to foreign-born ones (Dumont and Zurn, 2007). The difference can be explained, at least partly, by the fact that some of the foreign-born professionals receive training in the destination countries, either because they moved (often as children) with their families or as

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<sup>43</sup> Unfortunately data on return migration for doctors and nurses are not available.

<sup>44</sup> This was the case for nurses in South Africa for instance (Dumont Meyer 2004).

a result of internationalisation of medical education. Evidence suggests that the role of foreign medical students has been growing recently. Some of them, especially at postgraduate levels, are however migrant health workers whose qualification are not fully recognised.

#### 4.2.3 Policy responses

170. Addressing the global health workforce crisis and critical shortages in developing countries will require policy responses beyond migration policies in home and host countries. As already observed, shortages outweigh international migration by a large margin in many low-income countries, and, therefore, policy solutions must address the many factors underpinning such crisis. Yet, while managing migration cannot alone provide the response, receiving countries should be alert and sensitive to the impact that migration flows have on origin countries. This is especially true for impoverished nations that are facing critical shortages of health human resources. Widening international imbalances in the distribution of health human resources could also encourage the dissemination of disease and, in the long run, jeopardize global public health.

#### The role of sending countries

171. Governments and policy makers in countries that are facing workforce shortages have a role to play in searching for policy responses to reduce outflows and in strengthening health systems in source countries.

172. Assessment of the relative importance of in and outflows, their determinants, and impact on the health system, is clearly an important first step. Migration to other countries may be one main source of health worker outflows from the health workforce, but is not always the main or only one. Workers may simply leave the health profession in search for better paid or more motivating jobs or may be unable to find employment in their profession. Understanding what is happening and why will help designing actions to counterbalance movements out of the health workforce (Buchan, 2007).

173. The internal distribution of the health workforce is a great challenge for low-income countries, maybe even more than international migration. Imbalances between the rural and the urban areas or between the private and the public sectors raise major public-health concerns. The World Health Report (WHO, 2006) estimates that, on average, while 55% of the population lives in urban areas, these areas concentrate 75% of the doctors and 60% of the nurses. The imbalances in some developing countries can be even higher.<sup>45</sup>

174. There is an urgent need for action to improve domestic working and living conditions, including educational opportunities and security, along with domestic policies to train, attract and retain doctors and nurses in the source country. Although solutions can be hard to identify considering the strong financial constraints faced by many countries, some have successfully improved health-worker retention using a combination of monetary and non-monetary incentives.<sup>46</sup>

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<sup>45</sup> Two-thirds of the doctors in Ghana, for example, are to be found in the two largest towns of Accra and Kumasi (F. Nyonator and D. Dovlo, 2005).

<sup>46</sup> Malawi provides such an example, where it has been possible to improve retention and reduce unfilled vacancies, with a major financial support of the UK Department for International Development -DFID, over a 6 year period. The measure include increasing salary (+52%), increasing staffing (+7%), doubling the training intake of nurses and tripling that of doctors, developing hardship incentive package in 137 underserved rural areas (30% of facilities). Similar scheme were put in place with the support of the Dutch aid in Zambia for instance (Tyson 2007). Other countries such as Ghana have attempted to provide doctors with an advantageous car hire-purchase scheme and

175. To recover the cost of socially funded education, some developing countries, such as Ghana or South Africa, have implemented schemes whereby the government sustains medical and nursing training cost and requires, in exchange, that graduates work for public health services for a few years. Alternatively, medical graduates must buy back the bond before they can work overseas. These bonding schemes, however, have been often ineffective and have increased pressures to leave in several countries. Implementation has been complicated, among others, by difficulties in monitoring compliance. Destination countries can help making these arrangements more effective by ensuring that they would not recruit workers who had not fulfilled their obligations at home. A further possibility could be for home countries to treat domestic training cost as a personal loan, which is repayable. Receiving countries could buy from the source country the right to the income stream resulting from reimbursement of this personal loan, and collect themselves such repayments. This arrangement, however, presents several practical implementation difficulties, including setting the right price for this "right". Furthermore, the cost of implementing and monitoring the system may be high and discourage compliance.

176. Issues related to health workforce management and policies in developing countries have been dealt with extensively by the World Health Report (WHO, 2006) and remain beyond the scope of this paper. Nonetheless, international experience offers an opportunity to share positive and negative experience and learn from useful practices across both developed and developing countries.

#### The role of host countries in ethical management of international recruitment

177. Some OECD countries have already adopted policies to mitigate the negative impact and reinforce the benefits associated with the migration of health personnel. These provide interesting examples to be shared and eventually generalised or scaled up.

178. The demand for professional health workers in OECD countries will not stop in the future. Reducing reliance on migration by addressing structural unbalances in OECD countries, improving health human resource planning, as well as improving workforce distribution and deployment, go hand in hand with confronting some of the ethical concerns about international recruitment of health human resources from poorer source countries.

#### Codes of conducts and agreements

179. Codes of practice and intergovernmental agreements can be designed to manage international migration while fostering ethical recruitment of health professionals. Such codes seek to identify countries from which recruitment may be less harmful and to suggest forms of recruitment from poor countries. Examples of voluntary, non-legally binding instruments have been developed since 1999. Their diffusion has however been limited and their effectiveness questioned.

180. At national level, the United Kingdom has taken the lead in establishing *codes of ethical conduct* for international recruitment of healthcare professionals. The Department of Health published a code of practice (2001, revised in 2004) setting guiding principles for ethical recruitment and employment of migrant healthcare professionals (Department of Health, 2004). The Code seeks to prevent targeted recruitment from developing countries experiencing healthcare staff shortages. All health organisations, including the independent sector, can sign up to the principles contained within the Code. The UK National Health Service (NHS) also recommends using *recruitment agencies* that comply with the Code of Practice for both domestic and international recruitment, and it lists approved agencies. These efforts can help to regulate proactive approaches in recruiting skilled health professionals from developing countries.

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preferential access to housing loans for all health personnel. However, they had to face resentment among those not entitled to participate in the schemes.

181. The most cited example of multilateral codes is the Commonwealth's International Code of Practice for the *International Recruitment of Health Workers*. *The Code, produced in 2003, sets principles to guide governments in international recruitment of health workers (Commonwealth Secretariat, 2003)*. The European Federation of Nurses has similarly produced principles of ethical recruitment, while the European Union is currently trying to develop such a policy tool. Other initiatives have included the so-called "Melbourne Manifesto"<sup>47</sup> and the "London Manifesto",<sup>48</sup> both of which include specific guidelines and principles for fair recruitment (Labonte et al., 2006). Finally, the 57<sup>th</sup> World Health Assembly in 2004 urged member states to address health workers migration issues, and, in particular, to consider the development of an international Code of Practice on migration.

182. Bilateral agreements can be used to improve the management of international mobility of health workers, notably if they include clauses whereby a recipient country agrees to underwrite the costs of training additional staff; and/or to recruit staff for a fixed period only, prior to the staff returning to the source country; and/or to recruit surplus staff in source countries (Buchan, 2007). For example, the United Kingdom has developed bilateral agreements or Memoranda of Understanding for the recruitment of health workers with a number of countries including India, the Philippines, Spain, China and Indonesia. Japan has also an agreement with the Philippines for nurses and assistant nurses, which includes an important training component (Igushi 2006). Some Italian regions also have innovative bilateral agreements for nurses with a number of Romanian regions.

183. The effectiveness of ethical codes and intergovernmental agreements will depend on the content (principles envisaged, practical details), the coverage (countries and employers involved), and the compliance (mechanisms utilised, effectiveness) of these arrangements. Martineau and Willets (2006) review existing instruments for ethical international recruitment, highlighting limits of their efficiency due to the lack of support systems, incentives and sanctions, as well as monitoring systems. McIntosh, Togerson and Klasen (2007) underline the many practical difficulties for Canada of the implementation of ethical recruitment of internationally educated health professionals, notably in terms of balancing individual rights to migrate and international equity concerns and also as regards the definition of the concept of active recruitment.

#### Better sharing of training cost

184. Some source countries advocate a compensation mechanism which involves a transfer of money (or other form of compensation) from the destination country to the origin country, proportional to migration flows of doctors and nurses. The argument goes as follows: social externalities associated to health justify public investment in training of health workers, but workers' migration constitutes an implicit loss of such training cost and a subsidy to the destination country, which should be repaid, or at least compensated for. In the 70s and 80s, Bhagwati suggested that migrants could pay a special tax to finance education systems in developing countries (Bhagwati and Partington, 1976; Bhagwati, 1976).

185. This approach poses several conceptual and practical difficulties. For example, financial reparation should be evaluated taking into account: i) the employment opportunity in the home country

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<sup>47</sup> A code of practice for the international recruitment of health care professionals adopted by delegates to the World Organization of National Colleges, Academies and Academic Associations of General Practitioners/Family Physicians (WONCA) meeting in Melbourne, Australia on 3 May 2002

<sup>48</sup> An agreement resulting from an international conference on the global health workforce organised on 14 April 2005 by the British Medical Association in association with the Commonwealth. Participants included the American Medical Association, the American Nurses Association, the Commonwealth Medical Association, the Commonwealth Nurses Federation, Health Canada, the Medical Council of Canada, the Royal College of Nursing and the South African Medical Association.



(ex-ante); ii) the duration of stay in the receiving country (ex-post); as well as iii) the share of the cost of training that was funded by the migrant, the receiving country and the country of origin or of training. Furthermore, this approach rises poses ethical question for those who flee their home country for humanitarian reasons because of conflict or persecution.

186. These difficulties explain why, although much discussed, there is little evidence of the implementation of compensation schemes. The Commonwealth Code of International Recruitment of Health Workers is -- to our knowledge -- the only international agreement which mentions a compensation clause. The Code does not specify, however, mechanisms or principles to implement it. Among OECD countries only New Zealand has signed this code.

187. Part of the problem with compensation is the link between migration and monetary transfers. Some people have suggested that developed countries could contribute to a voluntary educational reinvestment fund to expand training in the developing world (Joint Learning Initiative, 2004). A UK report assessing policy options to reduce health professional migration also suggested a compensation equivalent to the salaried value of health workers employed in receiving countries (Mensah et al., 2005). This option, however, has been criticised and dismissed (Labonte et al., 2006).

#### Welcoming foreign medical students

188. Scholarships and grants for students from developing countries to study medicine in destination countries help to build skills which would otherwise have been difficult to acquire in home countries.

189. The return to investment for the origin country is conditioned by the return of the professional for a certain number of years following graduation. Several origin countries providing their students with publicly-financed scholarships to study medicine abroad already required health professionals to return home to practise, or repay back the loans and grants they received. Issuing non-extendable visas to foreign students from poorer countries is sometimes mentioned as an option for destination countries.

190. Norway, for example, offers scholarship grants to about 1100 students from developing countries, which they need to repay if they do not return home. The J1 *exchange visitor skill* visa in the United States stipulates that students must return for 2 years to their former country of permanent residence before applying to another US visa.<sup>49</sup> Under the Medical Training Initiative, the United Kingdom recently introduced a specific, non-renewable training and work-experience visa for third country nationals who receive a training sponsorship by the Royal Colleges and other organisations within the medical field. Changes in the 2006 immigration law in France make it easier for foreign students to shift status, although they also stipulate that, ultimately, the student is required to return to the origin country.

191. Imposing return clauses has however proved to be difficult, if not inefficient. People may prefer to leave for another receiving country, rather than return home. They may gain the right to remain in the country, through marriage for instance. Such policies also raise ethical trade-offs between the right of individual migrants to better himself/herself economically by moving to destination countries and the concern about the loss for the health systems of exporting nations. Applying restrictions on health worker migrants, particularly those from underserved origin countries, would also infringe upon individual rights which should not be discriminated by place of origin and profession.

192. Even without specific return clauses, there is certainly a potential for welcoming more foreign medical and nursing students in some OECD countries. Some of them will return home after completing

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<sup>49</sup> Except if eligible to J1 waiver programme.

their studies, which will benefit origin countries especially when these latter did not support training costs, while those staying on will add to the workforce of the residence country.

#### Foreign aid and technical assistance

193. OECD countries have long-term commitment through their aid agencies to improve living standards in developing countries. Efforts to achieve better health outcomes for the poor are an integral component of donors' poverty reduction strategies (OECD, 2003). By providing technical support and mobilising adequate financial resources, international aid plays an important role in building health human resource capacity. Donors can encourage the introduction of health workforce policies in Poverty Reduction Strategies drafted by developing countries. They can also support investments in training and education systems in the countries exporting skilled staff. For example, the UK Department for International Development supports programmes to strengthen health systems in developing countries, including through higher investment in training, and incentives and hardship allowances for workers working in rural areas (DFID, 2007). Donors can also help developing networks in source countries that draw on the experience of migrant professionals working in more developed nations.

194. Although smaller in scale, migration of health workers from developed to poor countries, including volunteers, offers a noteworthy contribution by offering specialised expertise to developing countries, especially if it is well coordinated with recipient countries (Laleman and al. 2007). These human resources can help to train health care workers in the country, and motivate them not to leave. They often fill vacant jobs and help addressing emergencies, as, for example, have done several non-profit organisations.

#### ***Summary of the main findings of Section 4***

195. Growing international mobility of health professionals needs to be better monitored. Intra OECD movements of health professionals account for an important share of immigrant health workers to OECD countries, inducing cross-OECD interdependency in the management of health human resources. Ultimately there is a risk of exporting shortages within or beyond the OECD area, including to the poorest nations. While migration from countries which trained to supply the world market offers an opportunity to address health professional shortages, it may not be a lasting solution as all receiving countries have to turn to a limited number of origin countries, which will have also to respond to an increasing demand for health care in the near future.

196. Several factors come into play in an evaluation of the costs and benefits, including, among others: i) how large is the workforce in the sending country; ii) the size of shortages or, conversely, of surpluses in countries that train health professionals for export; iii) the duration of migration; iv) the impact of remittances; v) the educational cost, and their sharing between origin and destination countries.

197. The global health workforce shortage, which goes far beyond the migration issue, calls for a shared responsibility between sending and destination countries. Origin countries have a primary role to play in strengthening their health systems, improving domestic working conditions and encourage better management of their workforce. Practices implemented in OECD countries, as discussed in section 3 of this paper, may offer useful examples in this respect. Host countries, on the other hand, must be aware of the impact of their policies on the health systems of impoverished nations. While good practices for an ethical management of international recruitment raise several implementation challenges, some offer useful examples to assess and possibly replicate.

## 5. Conclusion: the way forward

198. It has been reported that many OECD countries are facing potential shortages of health workers over the next 20 years. The demand for health workers is expected to increase because of rising incomes, continuing technological change in medicine and the ageing of OECD populations. The supply of existing health workers is set to fall, because the ‘baby boom’ generation is beginning to reach retirement age. Meanwhile, in many OECD countries it is anticipated that the younger age cohorts in the population will decline over the next 20 years, possibly making it more difficult, and expensive, to train and recruit replacement health workers.

199. If the national projections reported in section 1 are representative, they suggest that many OECD countries will be facing shortages of health workers in the next 10-20 years that they may struggle to eliminate by boosting domestic training programmes alone. Such countries are likely to face several potentially competing objectives when they devise policies to tackle the upcoming challenge of tight labour markets. They will be concerned with the future sustainability of health care expenditure – especially with containment of public spending on health care. Most, if not all, OECD countries believe that controlling the rate of growth of the physician workforce is a key policy to limit doctor-induced demand for health care. They will be concerned with microeconomic efficiency, in this case with matching the supply with the demand for health care workers and with minimising the costs of labour, including training costs, while maintaining or improving the quality of labour services. They may also be concerned with ethical or equity issues – especially, in this case, with the potential impact on the health of the populations of poorer countries if more of their scarce health workers emigrate to OECD countries.

### 5.1. Options for tackling future shortages

200. Individual OECD countries will face four main options to close the prospective gap between the demand for and supply of health workers over the next two decades. These are: to continue to train more staff at home; to encourage additional immigration of health workers from other OECD countries or from outside the OECD area; to encourage retention of and delay retirement of existing OECD health workers; and to raise productivity of existing health workers.

#### 5.1.1. Additional training

201. Many OECD countries have already increased their training rates for doctors and nurses. Countries could try to fill the projected remaining gaps between demand and supply that have been estimated in some countries by training even more health workers. The rapid rate at which some countries have increased their training programmes in recent years suggests that training capacity might be expandable even further.

202. However, training is likely to be a delayed and a costly way of filling the gap. It can take 5 years to fully train nurses and more than 10 years to fully train doctors. Also, since additional medical and nursing students will be drawn from a declining age cohort in many OECD countries, the supply of students may be increasingly inelastic. Filling additional posts – especially ‘hard-to-fill’ posts - may require an increase in relative remuneration, putting additional pressure on the wage bill. To put it another way, it is likely that there will be a rising opportunity cost of recruiting additional workers from a dwindling age cohort. Choosing the training option could conflict with the objective of containment of public expenditure. Not only will there be the threat of rising relative wages but also, in many countries, the training costs currently fall partly or mainly on the public sector. In such countries, it may be helpful to consider shifting more of the cost of training towards the private sector by imposing fees and financing them through loans.

*5.1.2. Additional immigration*

203. From the point of view of OECD countries facing shortages of health workers, additional immigration could be an attractive option especially if there are unanticipated surges in demand. It may be possible to recruit experienced staff within months rather than to wait for years for training to be completed. Moreover, if migrants come from countries where wages are lower than in the host country, there may be reduced pressure on wage rates in the host country. Migrants are often willing to accept 'hard-to-fill' posts in their new country. Moreover, the host country can save on the public costs of training if migrants come already equipped with suitable qualifications, or if they enter the host country as students and pay for their own training. Migration may be a way of maintaining the quality of labour services when the host country faces dwindling numbers of suitable applicants from the resident population. Meanwhile, migrants themselves are likely to be happy if the host country can offer posts with better pay and conditions than are available to them in the sending country.

204. However, if shortages were general, encouraging additional immigration of health workers within the OECD area would transmit shortages from OECD countries with more 'pull' to OECD countries with less 'pull'. Drawing additional migrants from the poorest countries outside the OECD area would raise strong ethical objections.

205. To the extent that major source countries train health professionals for export, emigration might not decrease their pool of human resources. Furthermore, if the cost of training is at least partly funded by the individual, as is the case in India and the Philippines, the social loss to home countries is minimised. Two countries which are already well-established in sending health workers to the OECD area, the Philippines and India, are expecting growth in the 15-24 age cohort of their populations of nearly 28% and over 12%, respectively, in the next 20 years, according to UN projections. In this context international migration of health workers could provide an opportunity for both the origin and the receiving country, as well as for the migrants themselves. However, there are doubts about the sustainability of this option as the demand for health care will also increase with the economic development of these countries.

206. Finally, from the receiving country perspective, even if international recruitments of foreign-trained health workers might help to adjust supply to demand in the short run and may contribute to reduce cost of training there are potential problems related to the integration of immigrants into health workforce (recognition of foreign qualification and language proficiency), cost of international recruitments especially when migration is mainly temporary, difficulties in retaining doctors and nurses in less attractive locations and positions and risk of dependence may appear as significant limitations.

*5.1.3. Encouraging retention and delaying retirement*

207. There may be scope for improving the retention of OECD health workers and delaying retirement. In the case of nurses, there is evidence from several OECD countries that nurse turnover and dissatisfaction is high. Demonstration projects have suggested that more investment in the 'Magnet Recognition Program', which approves institutions which show excellence in the organisation of nursing care, could help to improve retention of nurses as well as raise nurse productivity. Turning to retirement, rising expectation of life in OECD countries introduces the possibility that working lives may be extended. Many OECD countries have already begun to raise official retirement ages or to make retirement more flexible. Raising the retirement age by 3 years for doctors and nurses would add, about 10% and 12%, respectively, to the medical and nurse workforces, all other things being equal.

#### 5. 1.4. Raising productivity

208. So long as certain trends in the health workforce continue, such as reducing hours of work, increasing part time working, and, in the case of the medical profession, increasing specialisation and feminisation, there will tend to be a rise in headcounts in relation to work effort. This prospect should add to the stimulus for a search for higher productivity.

209. There are a number of new ways in which OECD countries may be able to raise the productivity of their health workers in the next couple of decades. These could include: labour-saving technological changes such as accelerating the introduction of IT systems in health care; further improving skill-mix in the health workforce, particularly by the further expansion of roles for physician assistants and nurse practitioners; and improving the relationship between pay and performance.

#### 5.2. Interdependence and shared responsibilities between origin and receiving countries

210. If there are countries with surplus and others with shortages, international migration of health professional can provide efficiency gains both at the global and the individual levels. When there is no identifiable surplus country international migration would still generate potential gains for the migrants itself and the receiving country facing recruitment difficulties. However, the latter case is a potential source of a free ride type problem, which gives rise at the global level to both efficiency and equity problems. Furthermore, at the domestic level there is potential trade-off between using migration and other policies, such as such as increasing domestic training or improving productivity, to address structural imbalances between supply and demand.

211. One important question is whether there will be countries with surplus of doctors and nurses which will be a position to supply the world market in the long run. This might be the case if the educational systems in some of the large developing countries, like China or India, are developing more rapidly than domestic demand. There are, however, doubts as mentioned above about the lasting of this potential *cornu copiae* and thus potential risks for increasing tensions world wide as countries compete for health workers. If many OECD countries add to their demand for health workers from a limited number of countries which have training programmes to supply the world market, the excess demand may spill over into some of the poorest countries in the World. That suggests that OECD countries have a shared responsibility, with origin countries, in addressing the risks of brain drain, particularly for small states with low starting density of health professionals.

212. Meanwhile, to the extent that immigration and emigration of health workers continues, there is no guarantee that the policies that are chosen will *add up* across countries. This is the key conclusion of this paper. Shortages, and indeed surpluses, of health workers can be exported from one country to others.

213. Therefore, there seems to be a strong case for future international communication about health workforce policy and planning across countries with a view to:

- diagnosing potential imbalances between demand and supply in the global market for health workers;
- and improving the prospects for international co-ordination.

Any such work should involve both OECD and WHO endeavours.

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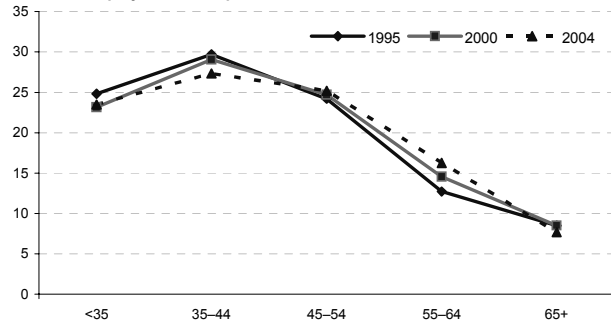
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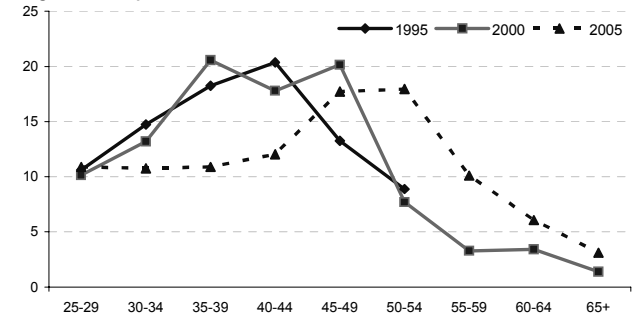
### ANNEX 1. AGE-DISTRIBUTION OF PHYSICIAN AND NURSE WORKFORCE, 1995, 2000 AND 2005

**Australia, employed medical practitioners**



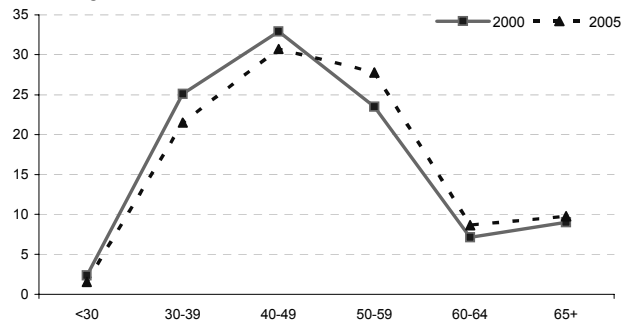
Source: Australian Institute of Health and Welfare

**Belgium, health professionals**



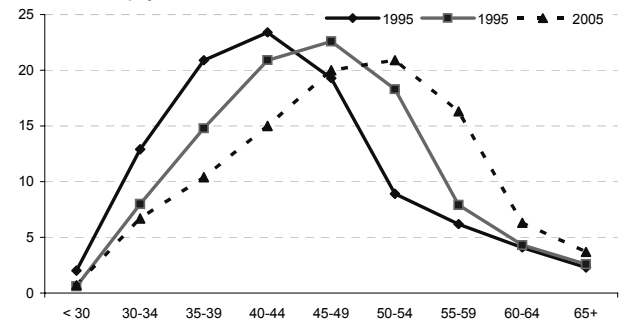
Source: European Union Labour Force Survey (data provided by Eurostat)

**Canada, registered doctors**



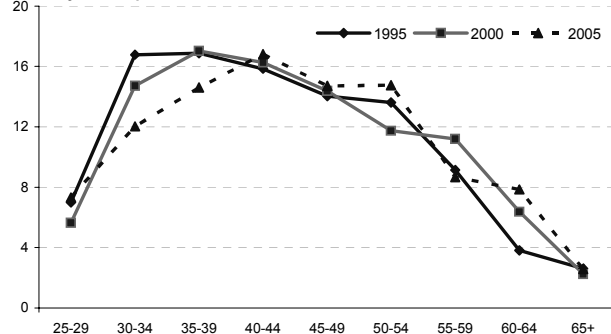
Source: Canadian Institute for Health Information

**France, active physicians**



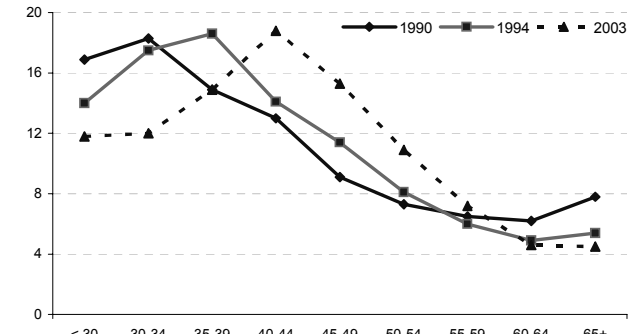
Source: Ministère de la Santé et des Solidarités, DREES

**Germany, health professionals**



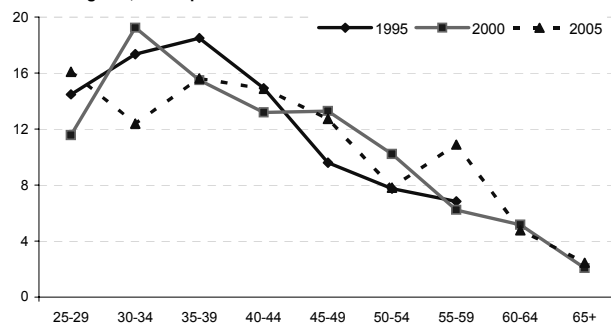
Source: European Union Labour Force Survey (data provided by Eurostat)

**New Zealand, active medical workforce**



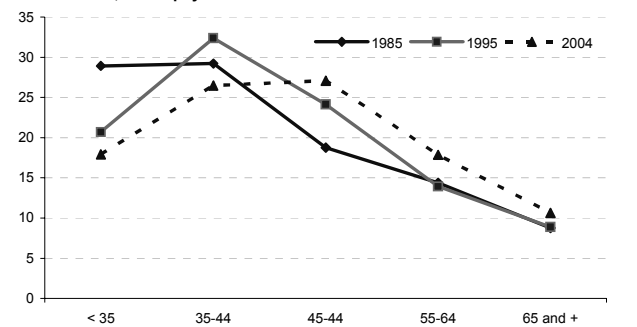
Source: NZHIS

**United Kingdom, health professionals**



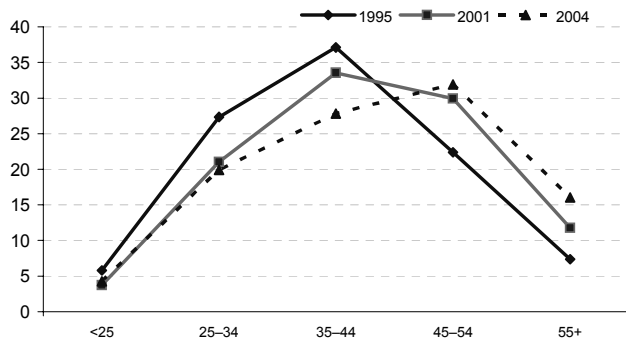
Source: European Union Labour Force Survey (data provided by Eurostat)

**United States, active physicians**



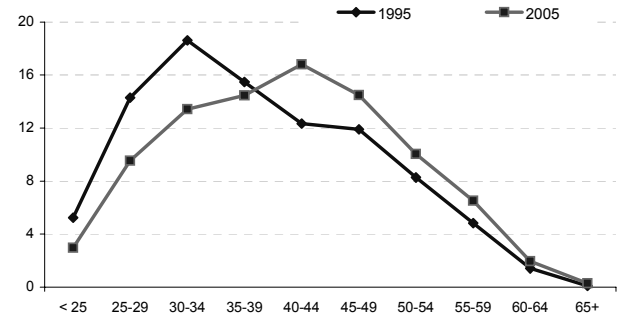
Source: American Medical Association

Australia, employed registered



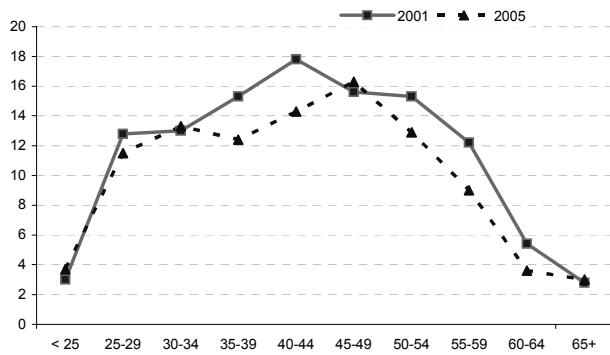
Source: Australian Institute of Health and Welfare

England, qualified nurses midwives and health visiting staff



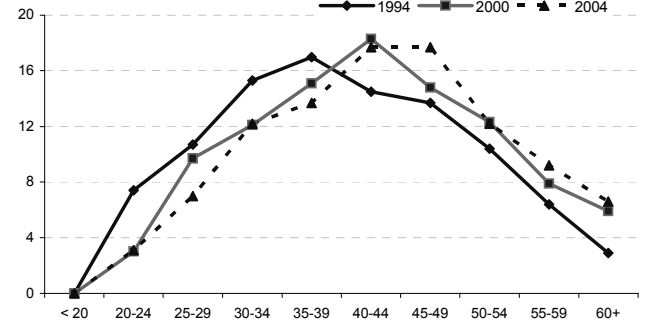
Source: NHS Information Centre

France, employed nurses



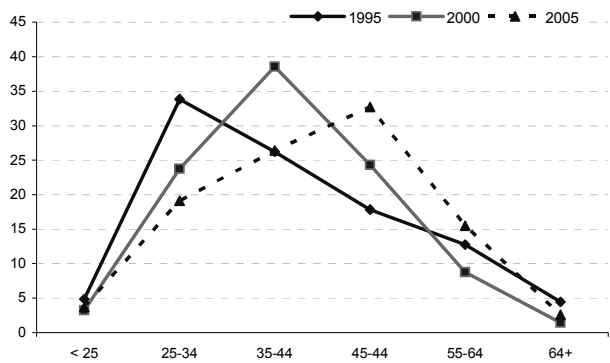
Source: Ministère de la Santé et des Solidarités, DREES

New Zealand, registered nurses and midwives



Source: NZHIS

United States, registered nurses

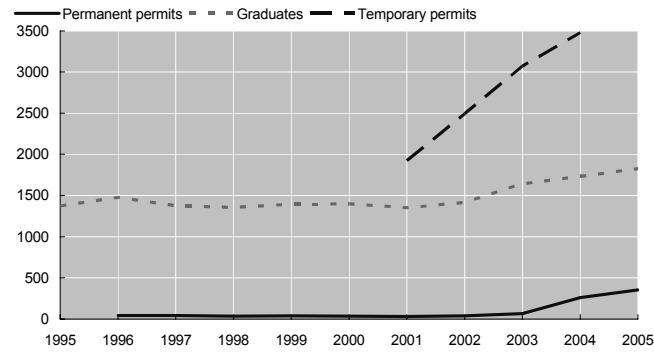


Source: National Sample Survey Registered Nurses, NSSRN and current population survey

## ANNEX 2. CHANGES IN THE NUMBERS OF MEDICAL AND NURSING GRADUATES AND NUMBERS OF IMMIGRANT PHYSICIANS AND NURSES IN SELECTED OECD COUNTRIES

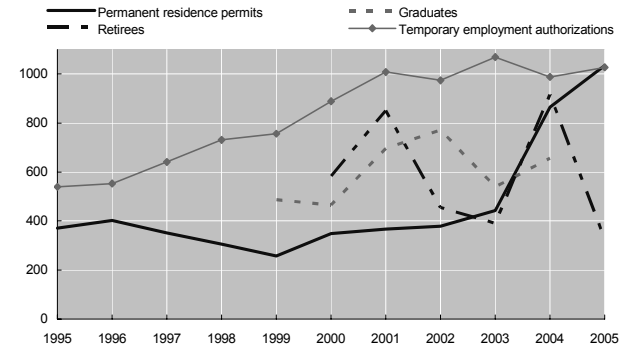
### Annexe 2a. Changes in the numbers of medical graduates and numbers of immigrant physicians, selected OECD countries, 1995-2005

**Australia, evolution of inflow foreign-trained and medical graduates, 1995-2005**



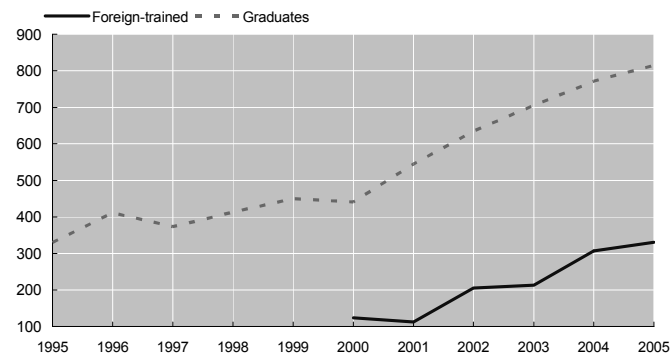
Sources: IMO 2007 and OECD Health Data 2007

**Canada, evolution of inflow foreign-trained and medical graduates, 1995-2005**



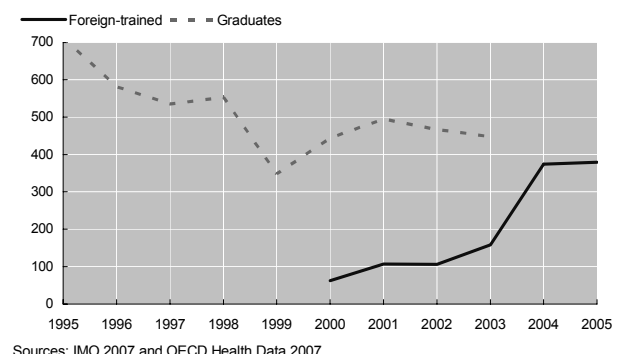
Sources: IMO 2007 and OECD Health Data 2007

**Denmark, evolution of inflow foreign-trained and medical graduates, 1995-2005**



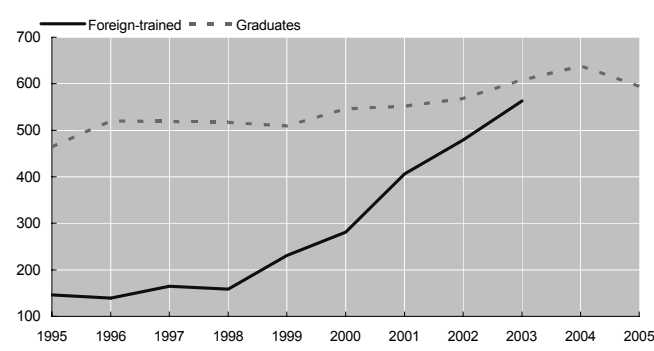
Sources: IMO 2007 and OECD Health Data 2007

**Finland, evolution of inflow foreign-trained and medical graduates, 1995-2005**



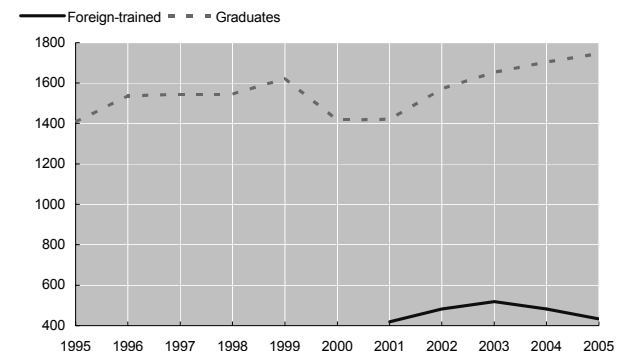
Sources: IMO 2007 and OECD Health Data 2007

**Ireland, evolution of inflow foreign-trained and medical graduates, 1995-2005**



Sources: IMO 2007 and OECD Health Data 2007

**Netherlands, evolution of inflow foreign-trained and medical graduates, 1995-2005**

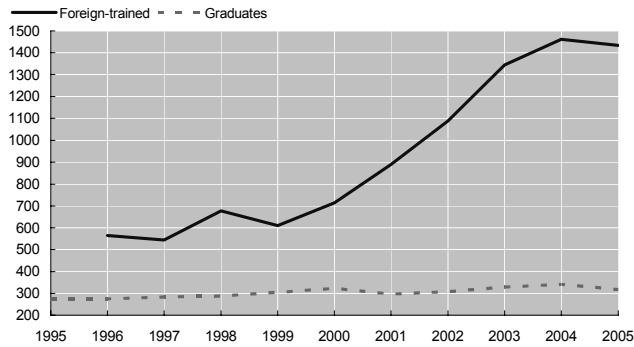


Sources: IMO 2007 and OECD Health Data 2007



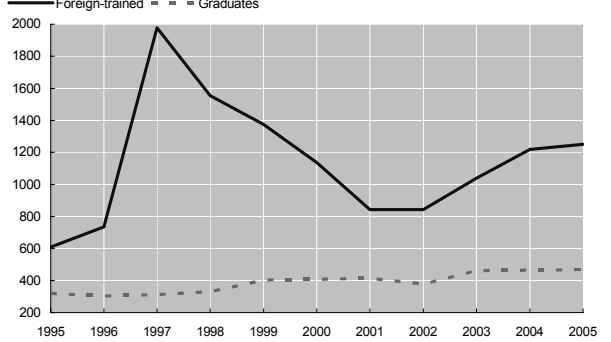
**Changes in the numbers of medical graduates and numbers of immigrant physicians, selected OECD countries, 1995-2005 (cont.)**

**New Zealand, evolution of inflow foreign-trained and medical graduates, 1995-2005**



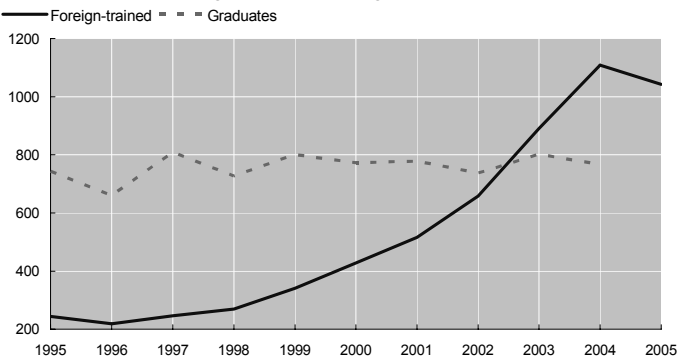
Sources: IMO 2007 and OECD Health Data 2007

**Norway, evolution of inflow foreign-trained and medical graduates, 1995-2005**



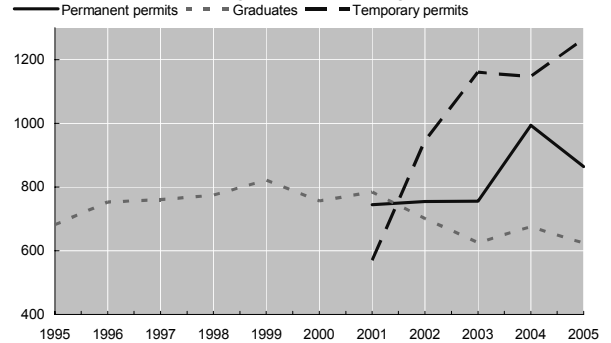
Sources: IMO 2007 and OECD Health Data 2007

**Sweden, evolution of inflow foreign-trained and medical graduates, 1995-2005**



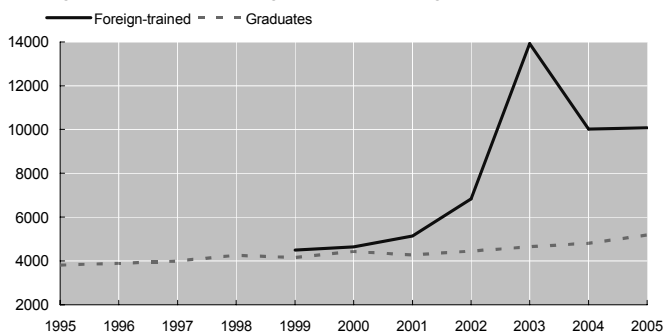
Sources: IMO 2007 and OECD Health Data 2007

**Switzerland, evolution of inflow foreign-trained and medical graduates, 1995-2005**



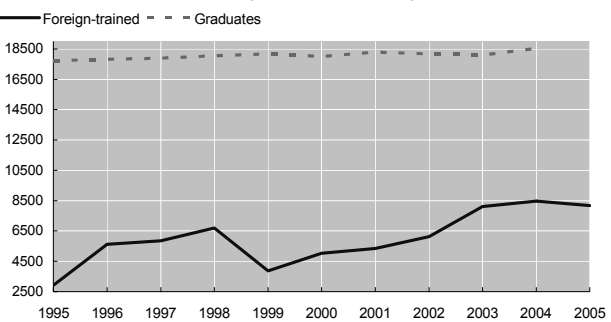
Sources: IMO 2007 and OECD Health Data 2007

**United Kingdom, evolution of inflow foreign-trained and medical graduates, 1995-2005**



Sources: IMO 2007 and OECD Health Data 2007

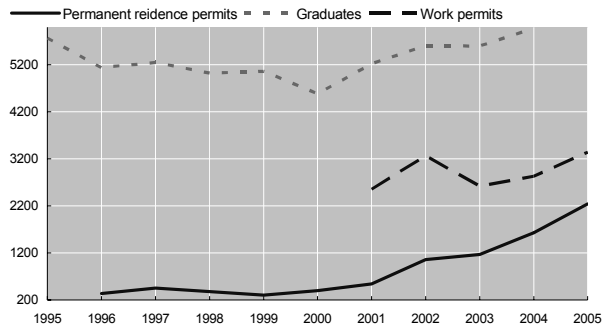
**United States, evolution of inflow foreign-trained and medical graduates, 1995-2005**



Sources: IMO 2007 and OECD Health Data 2007

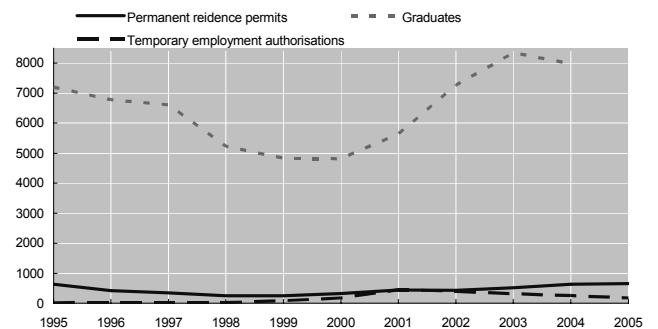
**Annexe 2b. Changes in the numbers of nursing graduates and numbers of immigrant nurses, selected OECD countries, 1995-2005**

**Australia, evolution of inflow foreign-trained and nursing graduates, 1995-2005**



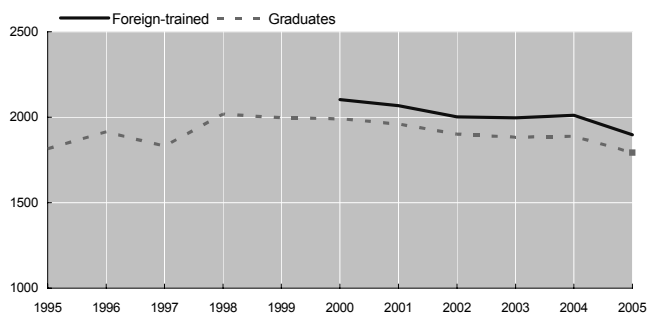
Sources: IMO 2007 and OECD Health Data 2007

**Canada, evolution of inflow foreign-trained and nursing graduates, 1995-2005**



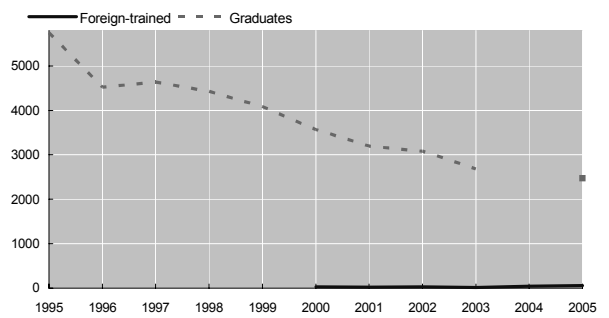
Sources: IMO 2007 and OECD Health Data 2007

**Denmark, evolution of inflow foreign-trained and nursing graduates, 1995-2005**



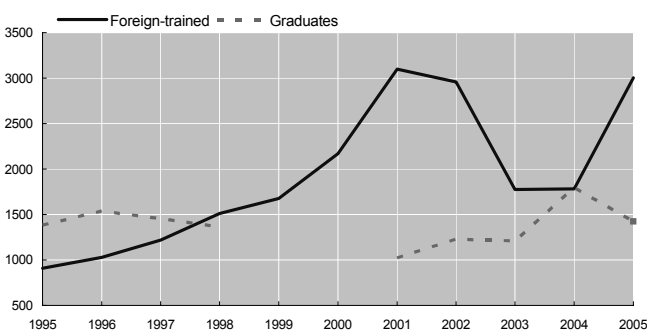
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**Finland, evolution of inflow foreign-trained and nursing graduates, 1995-2005**



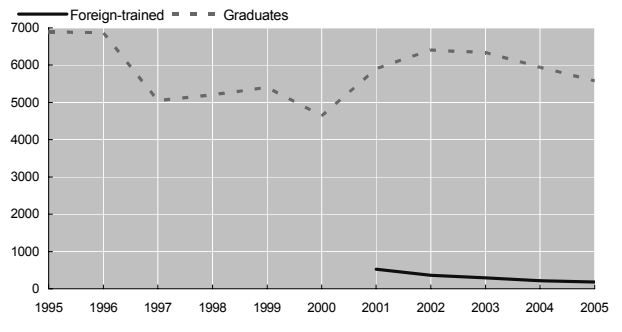
Sources: IMO 2007 and OECD Health Data 2007

**Ireland, evolution of inflow foreign-trained and nursing graduates, 1995-2005**



Sources: IMO 2007 and OECD Health Data 2007

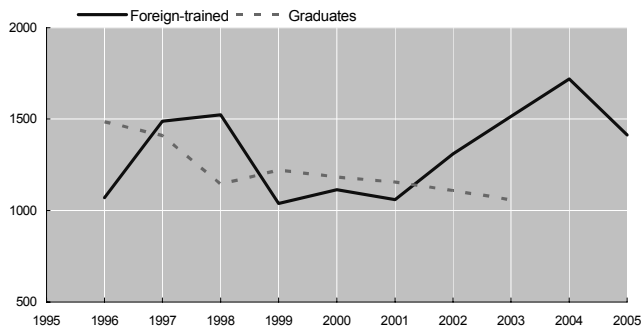
**Netherlands, evolution of inflow foreign-trained and nursing graduates, 1995-2005**



Sources: IMO 2007 and OECD Health Data 2007

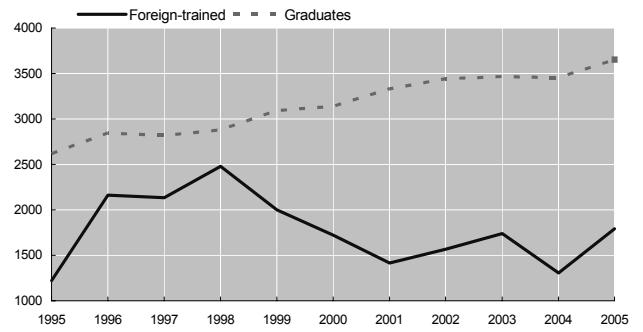
Changes in the numbers of nursing graduates and numbers of immigrant nurses, selected OECD countries, 1995-2005 (cont.)

New Zealand, evolution of inflow foreign-trained and nursing graduates, 1995-2005



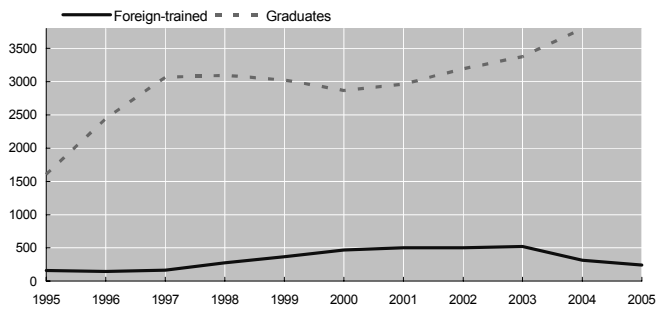
Sources: IMO 2007 and OECD Health Data 2007

Norway, evolution of inflow foreign-trained and nursing graduates, 1995-2005



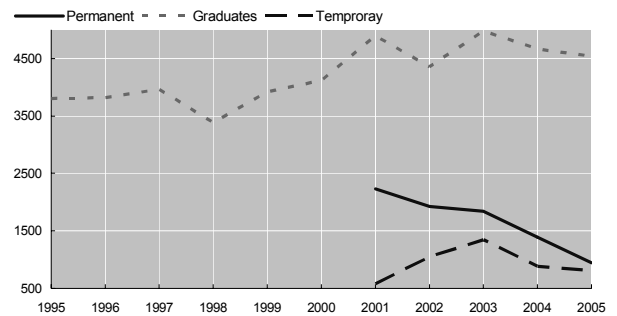
Sources: IMO 2007 and OECD Health Data 2007

Sweden, evolution of inflow foreign-trained and nursing graduates, 1995-2005



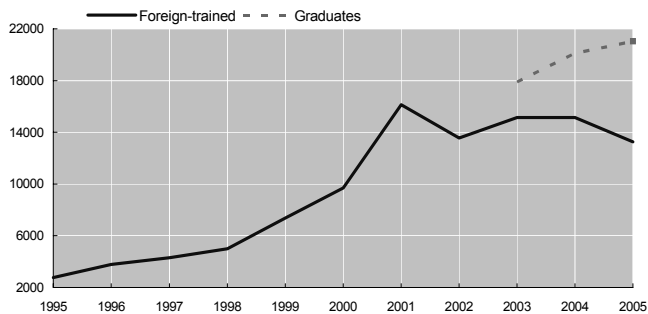
Sources: IMO 2007 and OECD Health Data 2007

Switzerland, evolution of inflow foreign-trained and nursing graduates, 1995-2005



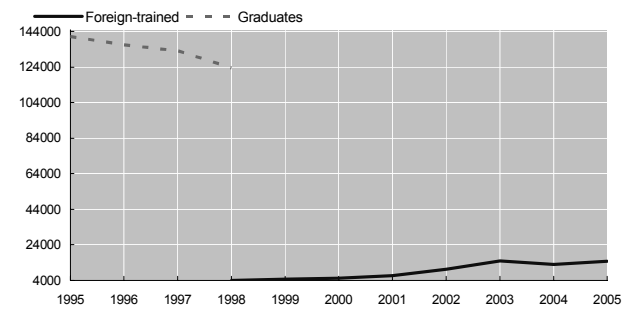
Sources: IMO 2007 and OECD Health Data 2007

United Kingdom, evolution of inflow foreign-trained and nursing graduates, 1995-2005



Sources: IMO 2007 and OECD Health Data 2007

United States, evolution of inflow foreign-trained and nursing graduates, 1995-2005



Sources: IMO 2007 and OECD Health Data 2007

## ANNEX 3. MEDICAL AND NURSING EDUCATION SYSTEMS IN SELECTED OECD COUNTRIES

| Country          | DOCTORS                                     |                                                                                                                                                                        |                                                                                       | NURSES                                      |                                                                                                                                                                                                     |                                                                                                          |
|------------------|---------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------|
|                  | Numerical limits apply to medical education | Remarks                                                                                                                                                                | Recent change in intakes                                                              | Numerical limits apply to nursing education | Remarks                                                                                                                                                                                             | Recent change in intakes                                                                                 |
| <b>Australia</b> | Yes                                         | Controlled by the Commonwealth through funding university places                                                                                                       | 5 new medical schools have opened since 2000 and 7 more programs are planned for 2008 | Yes                                         | Places in nursing schools, for registered nurse education, are determined by universities but the Commonwealth provides some funding and sets a minimum number of places for basic nurse education. | The Higher Education Support Act of 2003 provided a significant increase in the number of nursing places |
| <b>Austria</b>   | No                                          | Since 2003 Austria has one private medical school                                                                                                                      |                                                                                       | Yes                                         | Federal states determine the number of places available in nursing schools.                                                                                                                         |                                                                                                          |
| <b>Belgium</b>   | Yes since 1997                              | Government fixes the number of new accreditation to practice                                                                                                           | Decreased to 600 in 2006 (60% Flemish-speaking and 40% French-speaking students)      | No                                          |                                                                                                                                                                                                     |                                                                                                          |
| <b>Canada</b>    | Yes                                         | Medical education is essentially a provincial responsibility                                                                                                           |                                                                                       | No                                          | Provincial/territorial governments provide funding to post-secondary educational institutions. Places in nursing schools are based on negotiation between the ministries of health and education.   |                                                                                                          |
| <b>France</b>    | Yes since 1971                              | A decree from the Prime Minister fixes the numerus clausus for the admission in the 2d year of undergraduate medical school                                            | Increased progressively since 1993 to 7 100 in 2007                                   | Yes                                         | Quota for students at national level                                                                                                                                                                | The cap went from 1981 in 1997-98 to 30 000 in 2003-04                                                   |
| <b>Germany</b>   | Yes                                         | Study places are allocated by the Central Office for the Allocation of Places in Higher Education according to a procedure established by the Federal Lander.          |                                                                                       | No                                          | Places available in nursing schools are determined by the Federal Länder.                                                                                                                           |                                                                                                          |
| <b>Greece</b>    | Yes                                         | The Ministry of Education determines the number of places in each medical school on the basis of available financial resources rather than to match demand and supply. | The number of new students entering medical school has been recently stabilised       | Yes                                         | The Ministry of Education and the Central Health Council determine the places in public nursing schools.                                                                                            |                                                                                                          |
| <b>Ireland</b>   | No                                          | There are a certain number of state-funded places, but colleges have discretion to take in more students.                                                              |                                                                                       | Yes                                         | Places available in nursing schools are determined by the Higher Education Authority and funded by the Department of Health and Children.                                                           |                                                                                                          |

|              |     |                                                                                                                                             |                                                                 |     |                                                                                                    |
|--------------|-----|---------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------|-----|----------------------------------------------------------------------------------------------------|
| <b>Italy</b> | Yes | The number of places for the degree in Medicine and Surgery is determined yearly by a decree of the Minister for Universities and Research. | In 2007, the number of places was fixed at 7 858                | Yes |                                                                                                    |
| <b>Japan</b> | Yes |                                                                                                                                             | The medical school intake is limited until 2020. (around 7 000) | Yes | Places available in nursing schools are determined jointly by national and prefecture governments. |

## ANNEX 3 : MEDICAL AND NURSING EDUCATION SYSTEMS IN SELECTED OECD COUNTRIES (CONT.)

| Country            | DOCTORS                                     |                                                                                                       |                                                                                                                                                                | NURSES                                      |                                                                                                            |                                                                            |
|--------------------|---------------------------------------------|-------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------|------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------|
|                    | Numerical limits apply to medical education | Remarks                                                                                               | Recent change in intakes                                                                                                                                       | Numerical limits apply to nursing education | Remarks                                                                                                    | Recent change in intakes                                                   |
| <b>Korea</b>       | Yes                                         |                                                                                                       | Six new medical schools were opened in the 1990s but the medical school intake was cut by 10% in 2007.                                                         | Yes                                         | Places available in nursing schools are determined by the government.                                      |                                                                            |
| <b>Mexico</b>      | Yes                                         |                                                                                                       | The number of medical schools increased from 27 in 1970 to 56 in 1979. Between, 1970 and 1980, student enrolment more than tripled but it has decreased since. | No                                          |                                                                                                            |                                                                            |
| <b>Netherlands</b> | Yes                                         |                                                                                                       | On average 2 500 students are admitted each year.                                                                                                              | No                                          |                                                                                                            |                                                                            |
| <b>New Zealand</b> | Yes                                         | Enrolment into medical school is capped financially                                                   | The cap has been set at 325 since 2004. It has been lifted twice in the last 20 years.                                                                         | No                                          |                                                                                                            |                                                                            |
| <b>Norway</b>      | Yes                                         | .                                                                                                     |                                                                                                                                                                | No                                          |                                                                                                            |                                                                            |
| <b>Spain</b>       | Yes                                         | The Ministries of Health and Education and the National Conference of University Chairmen set the cap |                                                                                                                                                                | Yes                                         | The number of places available in nursing schools is determined by the Ministries of Health and Education. | The number of nursing places was limited in the late 1990s to about 7 000. |
| <b>Sweden</b>      | Yes                                         | Medical school intake is controlled by the central Government                                         |                                                                                                                                                                | Yes                                         | The number of places available in nursing schools is determined by the government.                         |                                                                            |
| <b>Switzerland</b> | Yes since 1998                              | Some cantons have introduced a <i>numerus clauses</i>                                                 |                                                                                                                                                                | Yes                                         | The number of places available in nursing schools is determined by cantons.                                |                                                                            |

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|                       |     |                                                                                                                                                                                                                      |                                                                                                                                                                                     |     |                                                                                                                                                                                                                                                        |  |
|-----------------------|-----|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| <b>United Kingdom</b> | Yes | Medical school intake is controlled by the government through the funding of university places.                                                                                                                      | Medical school intake nearly doubled, from 3 200 in 1990 to more than 6 000 in 2005-06.                                                                                             | Yes | Places available in nursing schools are determined in partnership between the Department of Health and local Workforce Development Confederations. Higher education institutions may provide additional places for students who fund their own courses |  |
| <b>United States</b>  | Yes | The U.S federal government does not impose any limitation on medical school enrolment, but residency places (funded by Medicare) are capped. States contribute to finance undergraduate training (through Medicaid). | Places in allopathic schools were frozen at their 1980 levels for more than two decades. In the mid- 1990, few new osteopathic colleges were established (more in the recent years) | No  | There is no central authority that determines the number of places available in nursing schools, although the States' decisions on public nursing education funding has a direct impact on capacity                                                    |  |

Source: adapted from Simoens and Hurst (2006), Simoens, Villeneuve and Hurst (2005) and Hall et al. (2003).