

Key findings

Over the past decade, it has become increasingly clear that OECD countries need to adapt their health systems to changing population health needs and the growing burden of chronic diseases and mental health problems, moving to more team-based and patient-centred care models.

The adoption of the Sustainable Development Goals (SDGs) during the United Nations Summit in September 2015 has renewed the political commitment for all countries around the world – be they upper, middle or lower income – to promote healthy lives and well-being for all the population and to achieve universal health coverage. Universal health coverage requires not only that people have adequate financial protection against the cost of health care, but also that there are appropriately skilled health workers to provide them with high-quality services when they need it.

The challenge of addressing health workforce requirements to achieve the goal of universal health coverage is obviously much greater in low-income countries, where there is a lower supply of skilled health workers and greater health care needs. But OECD countries also face the challenge of designing better health workforce strategies to meet the changing needs of ageing populations in a more cost-effective and sustainable way. There is growing recognition that this involves the need to develop more team-based care models that optimise the scope of practice of different health care providers, taking fuller advantage of the new opportunities offered by new technologies.

This publication reviews recent trends in health labour markets and related policies in OECD countries, and challenges countries are facing to better respond to future demand. Are we actually seeing a “health workforce crisis” that many people feared only a few years ago as the “baby-boom” generation of doctors and nurses was starting to retire? To what extent have OECD countries reduced their reliance on foreign-trained doctors and nurses by increasing their own domestic training capacity? What are the most promising policies to address the issue of the uneven geographic distribution of health workers within countries? What do we know about skills use and skills mismatch in the health sector? How do countries try to optimise the skill mix of health workers and their scope of practice?

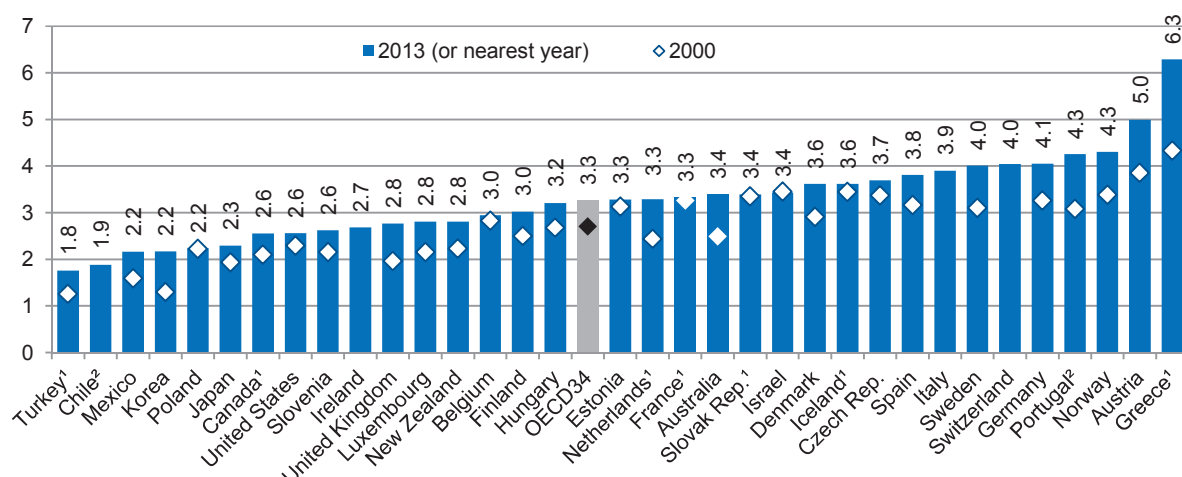
1. The number of doctors and nurses has never been greater in OECD countries

Despite repeated claims in the media and in public discussions of “growing shortages” or “crisis”, the number of doctors and nurses has never been greater in OECD countries, both in absolute number and on a per capita basis. In 2013, a total of 3.6 million doctors and 10.8 million nurses were employed in OECD countries, up from 2.9 million doctors and 8.3 million nurses in 2000. The number of doctors and nurses has grown more rapidly than the overall population in nearly all countries, so the doctor-to-population and nurse-to-population ratios have increased. On average across OECD countries, there were 3.3 doctors per 1 000 population in 2013, up from 2.7 in 2000 (an

increase of 20%), and 9.1 nurses per 1 000 population in 2013, up from 7.8 in 2000 (an increase of 15%).

The growth in the number of doctors has been particularly rapid in some countries, such as Turkey, Korea and Mexico, which started with relatively low levels in 2000, thereby narrowing the gap with other OECD countries. The number of doctors has also increased strongly in the United Kingdom, by over 50% in absolute terms, so that the number of doctors per population in the United Kingdom now exceeds the number in the United States and Canada, although it still remains below the (rising) OECD average. The number of doctors has also increased in other OECD countries that already had a relatively large number of doctors in 2000 (such as Greece, Austria and Norway), albeit in some cases at a slower pace following the economic crisis that started in 2008-09 (Figure 1).

Figure 1. Rising numbers of doctors in OECD countries, 2000 and 2013 (or nearest year)



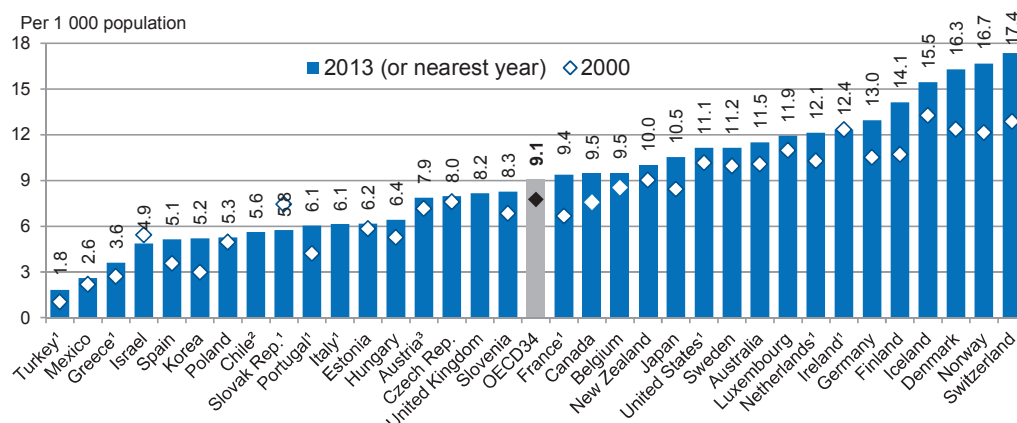
Information on data for Israel: <http://dx.doi.org/10.1787/888932315602>.

1. Data include not only doctors providing direct care to patients, but also those working in the health sector as managers, educators, researchers, etc. (adding another 5-10% of doctors).
2. Data refer to all doctors licensed to practice (resulting in a large over-estimation of the number of practising doctors in Portugal, of around 30%).

Source: OECD Health Statistics 2015.

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Similarly, the number of nurses has also increased in nearly all OECD countries, both in absolute number and on a per capita basis. This increase has occurred both in countries that had relatively low numbers in 2000 (such as Korea and Portugal) and in other countries that already had relatively high numbers (such as Switzerland, Norway and Denmark), although the growth rate has slowed down in some countries in the post-economic crisis period (such as Estonia, Ireland and Spain).

Figure 2. Rising numbers of nurses in OECD countries, 2000 and 2013 (or nearest year)

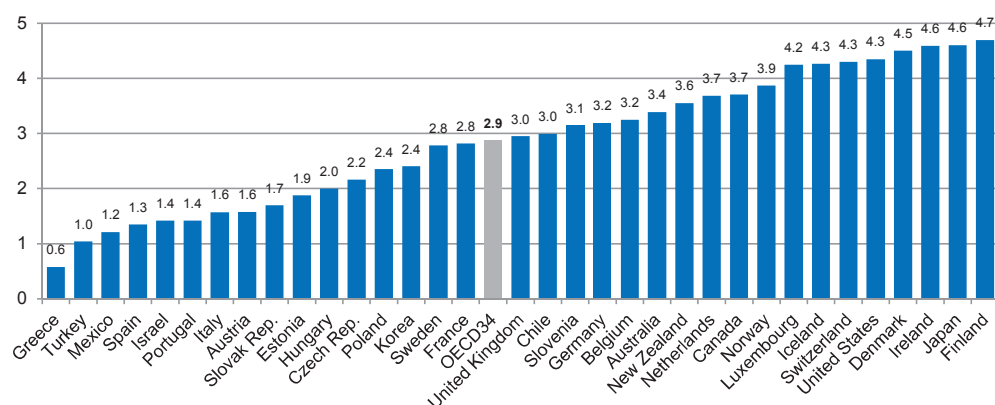
Information on data for Israel: <http://dx.doi.org/10.1787/888932315602>.

1. Data include not only nurses providing direct care to patients, but also those working in the health sector as managers, educators, researchers, etc.
2. Data in Chile refer to all nurses who are licensed to practice (less than one-third are professional nurses with a university degree).
3. Austria reports only nurses employed in hospital.

Source: OECD Health Statistics 2015.

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The “skill mix” (or to be more precise, the occupational mix), as measured by the number of nurses per doctor, differs widely across OECD countries, reflecting different ways of organising health care delivery and the distribution of tasks among different health care providers. In half of the countries, there were between 2 to 4 nurses per doctor in 2013; yet, this ratio varied from less than one nurse per doctor in Greece to 4.5 nurses per doctor (or over) in Finland, Japan, Ireland and Denmark. Some countries (e.g., Finland, Ireland and the United States) clearly rely more on nurses to do some tasks that are still the prerogative of doctors or other health care providers in others.

Figure 3. Ratio of nurses per physician, OECD countries, 2013 (or nearest year)

Information on data for Israel: <http://dx.doi.org/10.1787/888932315602>.

Source: OECD Health Statistics 2015.

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2. Most OECD countries have increased their education and training efforts to address replacement needs and projected rising demand

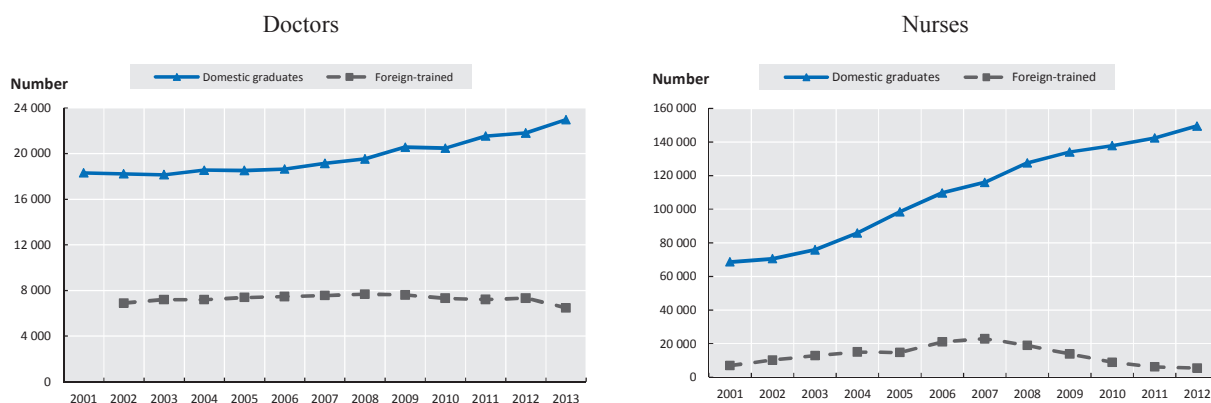
One of the main policy levers that OECD countries can use to adjust the supply of health workers is to change their *numerus clausus* policies (the annual quotas) regarding the number of students admitted to medical, nursing and other health-related education programmes.

Most OECD countries have increased considerably student intakes in medical and nursing education programmes over the past decade, in response to concerns about current or future shortages and in some cases to become less reliant on the immigration of foreign-trained doctors and nurses. In Finland, France, Netherlands and United Kingdom, most of the increase in medical student intakes occurred in the early 2000s with the number stabilising afterwards, whereas in Australia, Canada, New Zealand, Portugal and Sweden, the increase continued steadily throughout the period.

Student admissions in nursing education have also expanded substantially in most OECD countries since 2000. In Australia, Ireland and the United States, admissions growth has been fairly rapid and steady throughout the period, also reflecting previous concerns about projected shortages. In the United States, student admissions in registered nurses (RN) education programmes doubled between 2001 and 2013 (rising from about 100 000 to 200 000 per year). This expansion in admissions in RN education programmes has increased so much that there are now concerns of an over-supply of new graduates. The most recent projections from the US Department of Health and Human Services in 2014 estimated that if student admission rates remain at their 2013 level, there might be an over-supply of more than 300 000 RNs by 2025.

The number of students admitted in medical education programmes in the United States has also increased, but at a slower rate than in nursing. Between 2001 and 2013, student intakes in US medical schools grew by over 33%. However, the number of residency posts has not increased at the same pace, creating a bottleneck.

Figure 4. The number of domestic medical and nursing graduates in the United States has increased more rapidly than the number of foreign-trained doctors and nurses

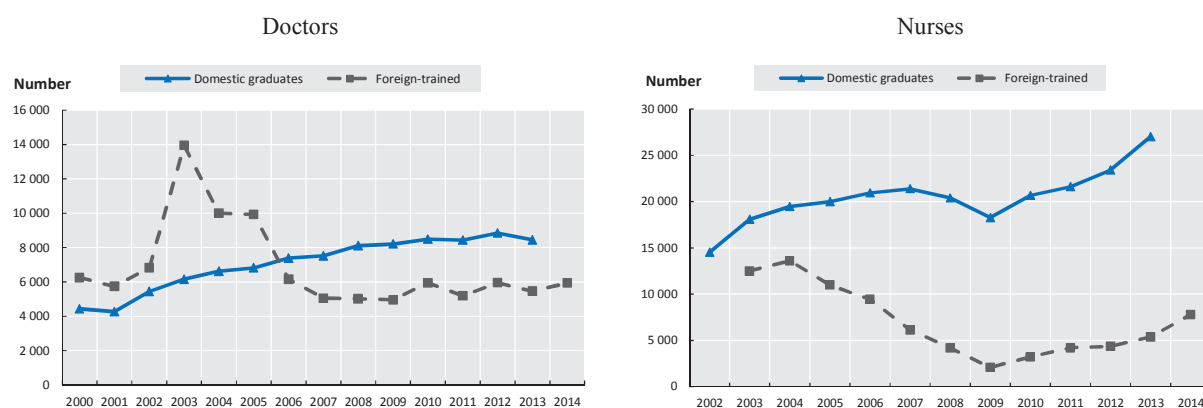


Source: The US Nursing Workforce: Trends in Supply and Education, Health Resources, Services Administration (HRSA), 2013; American Medical Associations, National Centre for Health Statistics.

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In the United Kingdom, the rapid expansion of medical student intakes starting in the early 2000s was accompanied by a sharp reduction in the annual inflow of foreign-trained doctors from the peak reached in 2003 when health spending and the recruitment of doctors and other categories of health workers were growing very rapidly. The number of new graduates from nursing schools in the United Kingdom has also gone up over the past decade. This was accompanied by a sharp reduction in the inflow of foreign-trained nurses between 2004 and 2009. However, since then, the number of foreign-trained nurses has gone back up, driven mainly by the migration of nurses trained in other EU countries (e.g., Spain and Portugal) to meet unexpected demands for nurses. There are also large outflows of nurses trained in the United Kingdom towards Australia, Canada, New Zealand and the United States.

Figure 5. The number of domestic medical and nursing graduates in the United Kingdom has increased more rapidly than the number of foreign-trained doctors and nurses, United Kingdom



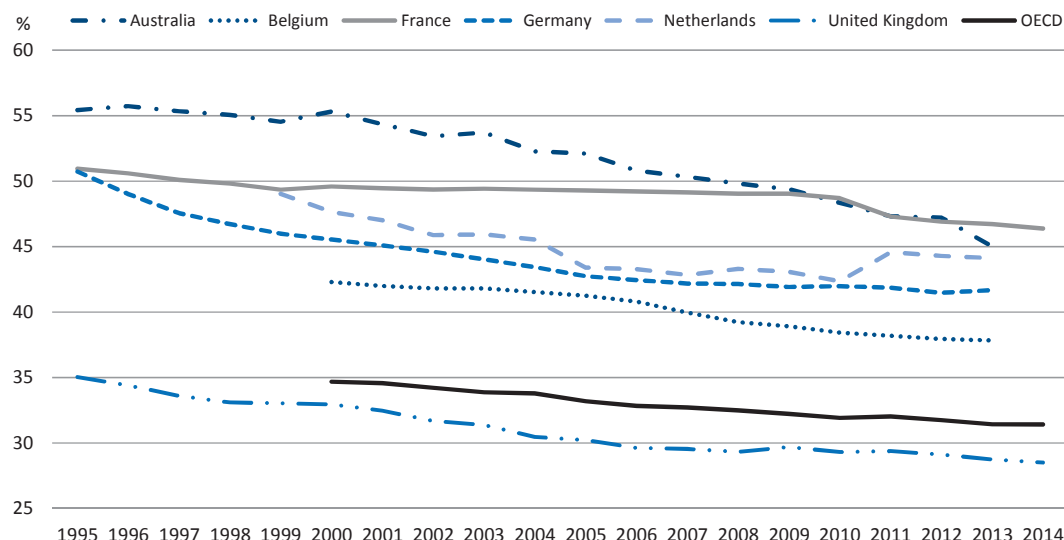
Note: Between 2005 and 2008, data on staff trained abroad correspond to the administrative period ending 31 March of the year indicated. Break in 2008 for the graduate series. Data from 2008 onwards are estimated.

Source: UK Graduate Output 1991/92 to 2012/13, Health and Social Care Information Centre. Nursing and Midwifery Council.

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3. Some OECD countries have also started to train more general practitioners

There is growing consensus across OECD countries about the need to transform health systems that were initially created to deal mainly with acute care in hospital to better respond to the growing burden of chronic diseases by a team of providers outside the hospital. But although the overall number of doctors has gone up, the share of general practitioners (GPs) has continued to drop. On average across OECD countries, only one-third of doctors are generalists.

Figure 6. The share of generalists among all doctors has come down over the past 20 years

Note: Generalists include general practitioners ('family doctors') and other generalists (non-specialists).

Source: OECD Health Statistics 2015.

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Several countries (e.g., Canada, France and the United Kingdom) have begun to take steps over the past decade to reverse this trend by increasing more rapidly the number of post-graduate training places in general medicine, although it has not always been easy to fill all the newly available places. A coherent and comprehensive strategy is needed to attract and retain more doctors to general medicine, including offering them clinical training places outside hospital, improving the relative remuneration of general practice, and reducing the workload and isolation still often associated with general practice by promoting group practices.

Some countries, for example the United States, Canada and the Netherlands, have increased student intakes in advanced education programmes for nurses, such as nurse practitioners (NPs) programmes, to increase the supply of "mid-level" providers. Many evaluations have shown that advanced practice nurses with proper training can improve access to primary care services and deliver the same quality of care as GPs for patients with minor illnesses, those with chronic conditions requiring routine follow-up, and others. Training and effectively using a greater number of advanced practice nurses may free up the time for doctors to deal with patients truly requiring medical diagnoses or treatments.

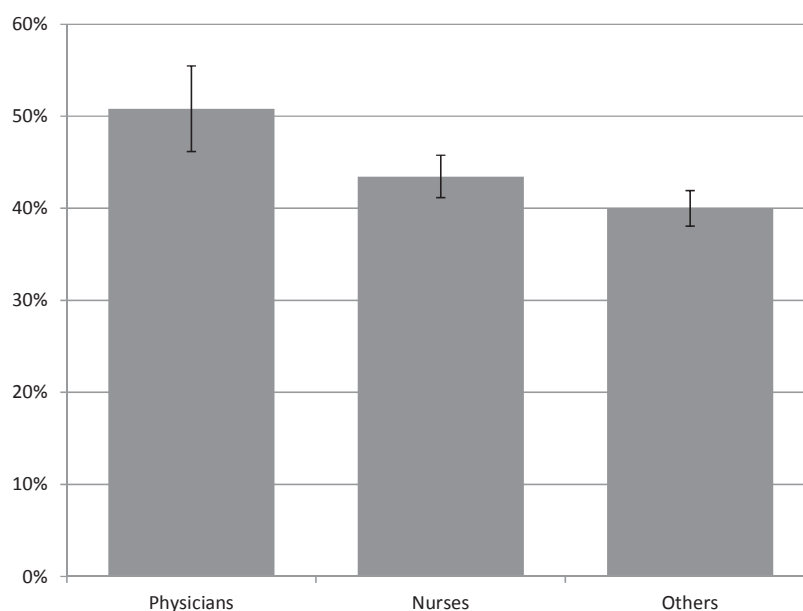
Too often however, there appears to be a lack of proper coordination in health workforce planning, and education and training policies, to assess in a more comprehensive way the future requirements of different categories of health workers. Health workforce planning and *numerus clausus* policies are still too often based on silo approaches, looking at each occupation in isolation.

4. Re-designing initial education and training programmes and strengthening continuous professional development to ensure that health workers have the right skills

Health professionals need a wide range of skills to perform their work efficiently, and these skills requirements are changing at a fast pace because of technological progress and new ways of delivering services. As in other sectors of the economy, there is not always a perfect match between the skills that health professionals have and the skills required in their jobs. Such skills mismatch raises concerns of a possible waste in human capital (when people are over-skilled for the work they do) or the quality and safety of health services (when they are lacking certain skills).

Based on the 2011-12 Programme for International Assessment of Adult Competencies (PIAAC) survey, about 50% of doctors reported being under-skilled for some of the tasks that they have to do, a much higher share than workers in other occupations. At the same time, the vast majority of doctors and nurses also reported being over-skilled for some of the work that they have to do.

Figure 7. Reported under-skilling by physicians, nurses and other occupations, PIAAC Survey, 2011-12

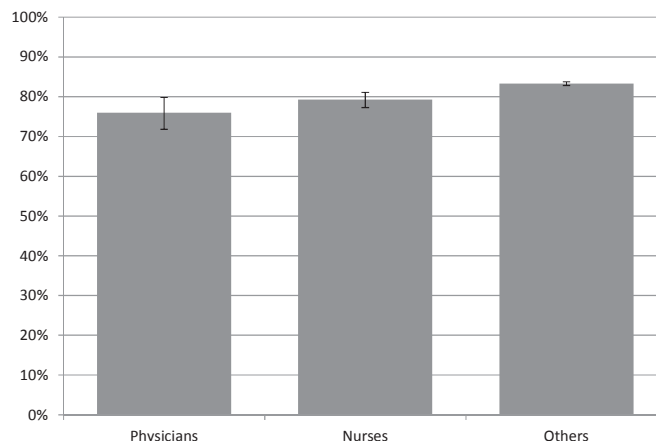


Note: Others = workers in other technical and professional occupations (ISCO 2 and 3). The figure depicts percentage responses with the associated 95% confidence interval.

Source: PIAAC, OECD analysis.

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A crucial issue to make sure that future generations of doctors and nurses will have the right skills to be “fit for practice” is the design of initial medical and nursing education programmes, since it is during these formative years that they will acquire a large part of the skills that they will use throughout their professional lives. Training of health professionals for the 21st century calls for more attention to team-based training of different health professionals and problem-based learning to overcome current gaps between the skills acquired in schools and the requirements in the workplaces.

Figure 8. Reported over-skilling by physicians, nurses and other occupations, PIAAC Survey, 2011-12

Note: Others = workers in other technical and professional occupations (ISCO 2 and 3). The figure depicts percentage responses with the associated 95% confidence interval.

Source: PIAAC, OECD analysis.

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Continuous professional development (CPD) is another important policy lever to ensure that the skills of practising doctors and nurses are kept up-to-date in a context of changing technologies and job requirements. In at least a dozen of OECD countries, participation in CPD activities for doctors is combined with re-licensing or re-registration requirements, as part of important health workforce management processes to ensure quality and patient safety. There is growing recognition that awarding a license to practise at the end of initial medical or nursing education is not sufficient to ensure high quality of care throughout the working life, considering the rapidly changing nature of health care delivery. Policies and regulations concerning CPD vary greatly across OECD countries. There are variations notably regarding whether participation in CPD activities is mandatory or not, whether there are requirements for health professionals to renew their licenses or registrations, and where that is the case, whether a certain amount of CPD is a mandatory part of the re-licensing or re-registration process. In the United Kingdom, CPD is linked to re-licensing or re-registration protocols, although CPD provisions for doctors do not follow a uniform nation-wide system.

Regardless of whether mandatory or voluntary systems are in place, some key common barriers to greater participation in CPD activities for doctors, nurses and other health professionals are lack of time and related cost. There is a need for more systematic and organisational support to allow professionals to take time off for CPD and to ensure that the costs are not prohibitive.

Policies also need to address over-skilling, which is reported by more than 70% of doctors and nurses who participated in the 2011-12 PIAAC survey. These policies involve reviewing the scope of practice of different health care providers, with a view to promote a fuller use of their skills and to delegate down some tasks that might be performed by “mid-level” providers or lower-skilled workers (such as health care assistants). Results from the 2011-12 PIAAC survey indicate that nurses with an advanced university degree are much more likely to report being over-skilled for the job they do compared to those with a bachelor’s or lower degree.

At least one-third of OECD countries reported in 2012-13 that they had introduced or expanded the roles of non-physician providers in the previous five years to improve access to care, particularly in primary care. These include promoting more advanced roles for nurses, as well as pharmacists and other providers. Past experience in the United States, Canada and Nordic countries shows that advanced practice nurses can play a particularly useful role to address the needs of population in areas underserved by doctors. However, the introduction or expansion of more advanced roles for nurses often needs to overcome the initial opposition from the medical profession.

5. Using technology and innovative health service delivery models to provide proper access to care for people living in rural and remote regions

A persisting major policy issue in many OECD countries is the uneven distribution of doctors across different geographic regions, which may limit access to primary care and hospital care for populations living in rural and remote regions (who often have greater health needs because they are older and sicker). This issue is particularly important in geographically-large countries, like Australia, Canada, the United States and the Nordic countries.

In all countries, the number of physicians per capita is greater in urban regions (and particularly in national capital regions) than in rural areas, reflecting the preference of physicians to practise in urban settings and the greater concentration of specialist services.

A wide range of policies have been tried in different OECD countries to address this issue, with uneven success:

- *Policies targeting the selection of medical students or the location of medical schools:* Policies focussing on student selection are based on evidence that students coming from rural backgrounds have a greater likelihood to practice in rural areas once they have completed their training than those coming from urban areas. Australia and Japan have fixed some minimum quota of medical places reserved for students with a rural background, sometimes accompanied by financial support provided to these students or any other students in exchange for a return-of-service obligation to practice for a number of years in underserved areas once they have completed their training. Norway, Japan and Canada have established some medical schools in rural or remote regions, with the expectation that more students graduating from these schools would remain in these regions afterwards. There is evidence from these countries that a high proportion of students stay in these rural/remote regions, even though some additional financial incentives are also sometime provided.
- *Providing financial incentives for doctors to practice in underserved areas or implementing regulations to restrict the choice of practice location:* Another common approach is to provide various types of financial incentives to attract doctors to practice in underserved areas and to retain them, for example through one-off payments to facilitate their installation and/or recurrent supplementary payments or bonuses. In Germany, most states (*Länder*) offer financial incentives for GPs who are opening their practice for the first time, with GPs eligible to a higher payment if they choose to locate in underserved areas. This is combined with regulations which restrict the freedom of doctors to set up a new practice in areas that are deemed to be adequately supplied. Australia steers international medical graduates and foreign-trained physicians into underserved areas, using regulations to impose practice in designated areas for a number of years.

Figure 9. The number of doctors varies widely across regions (2013 or nearest year)



Note: Each observation (point) represents a territorial level 2 region (for example, *region* in France, *Länder* in Germany or *State* in the United States) in each country. The data for Chile relate to 2009 and do not reflect the increase in the number of physicians since then.

Information on data for Israel: <http://dx.doi.org/10.1787/888932315602>.

Source: OECD (2015), *Health at a Glance 2015: OECD Indicators*, OECD Publishing, Paris, http://dx.doi.org/10.1787/health_glance-2015-en.

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- *Promoting innovations in health service delivery and telemedicine:* Many countries have also promoted various types of innovations in health service delivery to achieve the goal of providing adequate access to services with fewer doctors on site. These innovations include encouraging a transfer of competences from doctors to nurses and other local health professionals, and the development of telemedicine to connect patients and doctors through remote distance when needed. Telemedicine can also be used to connect local nurses and other paramedical staff with doctors to seek advice and support on diagnoses and prescriptions as needed. There are growing numbers of initiatives underway across OECD countries to exploit the use of telemedicine to improve access to health services, notably in large countries such as Canada, Australia and Finland, but also in smaller size countries such as Portugal.

These policy levers are not mutually exclusive and may have a greater impact if they are used in combination. The French Ministry of Health and Social Affairs has launched in 2012 a fairly comprehensive “Health Territory Pact” to promote the recruitment and retention of doctors in underserved areas and innovative ways of delivering services in these locations which combines many of the above-mentioned policies. This Pact contains a series of measures to encourage the establishment of young doctors in underserved regions, including not only financial incentives but also improvements in their working conditions notably through the creation of new multi-disciplinary medical homes allowing physicians and other health professionals to work in the same location. It also includes the promotion of telemedicine and the transfer of competences from doctors to other local health care providers.

6. Reducing the reliance on foreign-trained health workers

The international migration of skilled workers is not unique to the health sector, but it continues to raise serious concerns when it is exacerbating shortages of skilled health workers in those countries (notably low-income countries) that are already suffering from even more acute shortages. When they adopted the Global Code of Practice on the International Recruitment of Health Personnel in 2010, all WHO members committed to improving their health workforce planning and to respond to their future needs without relying unduly on the training efforts of other countries. The goal is not necessarily to achieve self-sufficiency, but to avoid relying systematically on other countries to fill domestic needs by training a sufficient number domestically.

The marked increase in domestic education and training efforts in many OECD countries over the past decade has already reduced considerably the inflows of foreign-trained doctors and nurses moving to these countries. This is notably the case in the United States – the biggest importer of foreign-trained doctors and nurses – where the inflows of foreign-trained nurses in particular is now much lower compared to what it was ten years ago (Figure 4). In the United Kingdom (the second biggest importer), the number of new domestic medical graduates now exceeds the number of foreign-trained doctors as the main source of new inflows in the health system. The composition of foreign-trained doctors has also changed considerably over the past decade, with fewer doctors coming from Africa and Asia, and a growing number of doctors coming from other EU countries.

Within the EU, there have been large emigrations of doctors and nurses from some of the new EU member countries in Central and Eastern Europe to Western Europe following their accession, as barriers to mobility were reduced notably through the mutual recognition of professional qualifications. In some cases, this emigration has seriously affected the supply of health workers, particularly in rural areas which were already lacking skilled health workers. To address this expatriation issue, several Central and Eastern European countries have introduced measures to increase the retention of doctors and nurses by increasing salaries and improving working conditions, despite tight budget constraints.

Consistent with the broad principles of the WHO Global Code of Practice, some OECD countries have reached since 2010 some bilateral or multilateral agreements with other countries to achieve mutually beneficial cooperation in international training and recruitment of health personnel. Up to now, these bilateral or multilateral agreements have involved only a fairly limited number of doctors and nurses, but these cooperation agreements might expand in the future particularly if they are steered towards positions that are hard to fill in receiving countries.

7. Conclusions

As with all areas of human endeavour, the provision of health care is continually changing, driven by innovation, technology, the changing health needs of populations, and economic constraints. While this has always been the case, the rate of change is accelerating. These changes present tremendous opportunities to deliver better and more efficient health services to more people. At the same time, they are also a challenge for health systems and the traditional functions and responsibilities of health professionals. Policy makers, professional groups, educational institutions and citizens need to work together to overcome these challenges and ensure health systems continue to meet changing needs and rising expectations.

Health workforce planning and policies in many OECD countries have been confronted with the short-term goal of ensuring that there will be a sufficient number of the conventional health care providers that have traditionally played a central role in health systems (notably doctors and nurses), with the longer-term objective of promoting necessary transformations in health service delivery models to better respond to changing population health needs and better exploit new technologies and the skills of various providers. In responding to pressures to achieve the short-term goal, policy-makers need to make sure that the decisions will not make it more difficult to achieve this longer-term objective.

Looking ahead, health workforce policies should be designed to achieve the goal of having the right number and mix of health care providers, with the right skills, providing services in the right places, to better respond to changing population health needs and ensure good value for the growing amount of money spent on health.

The right jobs

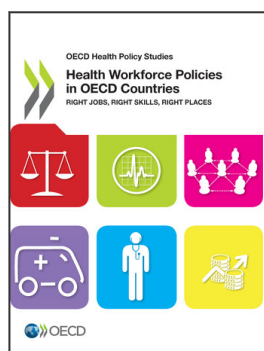
- Countries need to *train a sufficient number and proper mix of health workers* to meet future needs. They should pursue this goal without “free-riding” on the training efforts of other countries, particularly those suffering from acute shortages.
- Countries need to optimise the scope of practice of different health care providers, with a view to make the best use of their *qualifications and skills*. They need to remove any unnecessary barriers to the full scope of practice and promote innovative and collaborative health service delivery models to meet changing population health needs.

The right skills

- Countries need to *ensure that health workers acquire and maintain the right skills and competences* to deliver high-quality health services in more team-based and patient-centred approaches. In a context of rapidly changing technologies and evolving health service delivery models, there is a need to adapt education and training programmes, encourage continuous professional development and the regular re-certification of health professionals to ensure that their skills are kept up-to-date.

The right places

- Countries need to ensure that all the population has adequate access to health care regardless of where they live, by promoting a more even geographic distribution of health workers through financial incentives and/or regulations, enabling broader scopes of practice for non-physician providers with the required training and skills, and making greater use of innovative health service delivery models, notably telemedicine.



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Right Jobs, Right Skills, Right Places

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