

## Chapter 4

### Human and physical resources in Peru

*The health care sector is heavily dependent on the skills and number of staff. Constituting the largest share of health service costs, human resource supply and planning has a significant impact on resource allocation. Many countries also struggle with an unequal geographical distribution of health professionals. Effective governance requires a standardised and comprehensive system to record information on human and physical resources.*

*Peru has not had a system to adequately monitor and compare human and physical resources. Limitations have been due to gaps in reporting, although improvements have been made in recent years for public institutions, also differences in definitions remain across sub-systems. Developments in the collection of comparable information on human and physical resources for international purposes can serve as support in improving data collection. This chapter discusses definitions and suggests directions for further areas for improvement in Peruvian data on human and physical resources.*

The statistical data for Israel are supplied by and under the responsibility of the relevant Israeli authorities. The use of such data by the OECD is without prejudice to the status of the Golan Heights, East Jerusalem and Israeli settlements in the West Bank under the terms of international law.

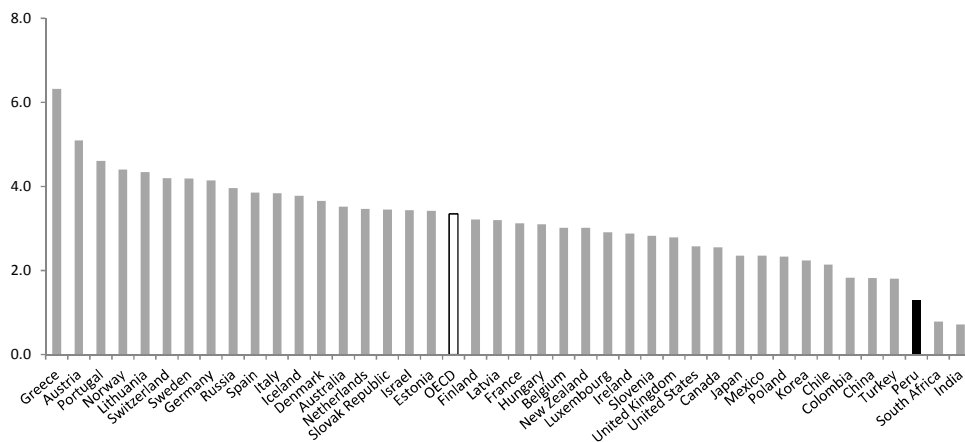
## 4.1. Introduction

Accurate and comprehensive statistics on human and physical resources available across the entirety of the health system are a key input for effective health system monitoring and service planning. Together with financial resources, they constitute part of the prerequisite information base to reach informed policy decisions on priorities and resource allocations. In the health care sector, human capital is the most important and decisive factor of production, accounting for a proportionally large share of overall costs compared to other sectors of the economy. This makes rational human resource planning a key factor in achieving better performance in the health sector. In Peru, variations in data reporting and gaps in coverage, together with inadequate information systems, do not allow for an accurate and exhaustive picture of the current level of resources nationwide.

Latest available figures published by MINSA indicate that Peru had 1.3 practicing doctors per 1 000 population in 2016 and 2.16 practicing nurses per 1 000 population in 2013 (DGGDRH, 2016; INEI, 2014). Compared with the two OECD countries in the Latin American region, Peru reports fewer doctors than both Chile and Mexico, which had 2.0 and 2.2 doctors per 1 000 population respectively in 2015 (Figure 4.1). All three countries remain well below the OECD average of 3.3. However, the steadily increasing numbers of medical staff, especially nurses over the last decade, due to an extensive expansion of educational capacity in Peru, is a promising development. That said, accurate information on how many medical graduates remain to practice medicine in Peru and in the public sector is a vital component of human resource planning.

As with many other countries, Peru also struggles with an unequal distribution of its resources across the regions and sub-systems. While awareness of the disparities is high and national programmes have been implemented to overcome this problem, an improved information base of where health professionals are practicing is important to be able to monitor and assess the success of such efforts as well as for the general governance of the health system.

The picture is similar regarding the reported level of physical resources (e.g. hospitals, beds and medical technologies) in the Peruvian health sector. For example, the number of beds per population reported in Peru at 1.6<sup>1</sup> per 1 000 population is well below the OECD average of 4.7 in 2014 but again on a par with its peers in Latin America.

**Figure 4.1. Practising physicians in OECD and selected countries, 2015**

*Note:* 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). 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 2017.

This chapter reviews the availability and quality of the current statistics on human and physical resources in the Peruvian health sector and assesses to what extent the figures reported are nationally representative and internationally comparable. As such, it discusses the gaps in the information base that Peru should strive to fill to be able to more appropriately use such information in national policy formulation. The chapter covers the data areas on human resources (by main professional categories and remuneration levels), and physical resources (number and use of hospital beds and medical equipment). As with the other chapters, the review of available data on these categories serves a dual purpose. One is to assess Peru's ability to provide internationally comparable aggregates of basic health resource data. The other is to assess to what extent resource data are available for domestic analytical purposes in the country.

The quality of the data is assessed by comparing available Peruvian statistics against international definitions and standards, defined and used by OECD (in conjunction with other international partners) for its regular data collections that feed the OECD Health Statistics database. Standard definitions were provided to MINSA together with the questionnaires sent to the Peruvian authorities at the start of this review process. It should be noted that the data submitted by countries in the OECD data collection is intended

to be nationally representative e.g. in terms of doctor or nurse numbers per 1 000 population and not pertaining only to a particular region or part of the health system. Thus, an important element of quality assessment is the coverage of the reported statistics, i.e. if the data represents the whole geographical defined area, population and set of institutions. Considering the highly fragmented nature of Peru's health information system, coverage across institutional and organisational borders is a challenging element. For human resources, Peru has made great progress in this area over the recent years, perhaps with the exception of improved information on private providers.

It should be noted that the initial data submitted by the Peruvian authorities at the start of the review process has been complemented during the later stages of the study, subsequent to the mission in Peru, and after further dialogue with the Peruvian authorities. In line with the stringent validation process undertaken for OECD countries, detailed metadata was also requested; the source, coverage, deviation from definitions, estimations to derive data, and breaks in the time-series. This enables a full documentation of the quality of the data, and makes it possible to assess its comparability.

## 4.2. Defining and measuring human resources in health care

OECD collects a large amount of information on human resources in the health sector through its international data collections, following a well-established set of internationally agreed definitions. Statistics allow for a wide range of analyses of available resources as well as how these resources are allocated within the health systems, for example to what extent they are deployed across the health sector (i.e. registered versus practicing), how many work in hospitals compared to other (e.g. primary health) care providers, or how the mix of different health care professional categories compares across countries. This section describes the main types of professional staff. For each category of staff the base indicator is defined as the number of persons, i.e. a head count rather than a measure of full-time equivalents (FTE). To avoid the prospect of any double counting, the predominant area of practice is counted for those doctors with more than one specialisation, or if not possible, the latest specialisation registered for the individual doctor.<sup>2</sup>

### ***Making a clear distinction between licenced, active and practising doctors***

Measuring the numbers of available staff in the health sector necessitates the application of robust and unambiguous definitions. The fact

that several professions in the health sector require very specific education and licencing can help in this regard, but it can also prove illusive in monitoring how many are actually available to the health sector. For each medical profession there are three different concepts regarding status. The first is *practicing*, which includes staff in direct current contact with patients. The second, *professionally active*, includes the former category but widens this to also include professionals working on other aspects within the health system, e.g. establishing norms and regulations, policy, research or administration. The third category defined as *licenced to practice* includes the two former categories, but also those registered and entitled to practice but not necessarily part of the current health work force. This may include those employed in another profession, or perhaps registered as unemployed, as well as those that have emigrated. Table 4.1 describes the definitions for medical doctors.

These three distinct concepts are applied to those medical professions which are normally subject to licensing in order to practice, i.e. medical doctors, midwives, nurses, dentists, pharmacists. For example, practicing nurses provide services directly to patients, while professionally active nurses may include nurses working in administration, management, research and in other posts without direct contact with patients, while nurses licenced to practice may not be necessarily active in their profession or are working abroad.

For many countries, Peru included, the management and planning of the health sector workforce is not limited to providing a steady supply of physicians or nurses, but finding the right balance regarding different specialisations. For example, the availability of general practitioners is vital in providing the population with adequate access to primary health care services. To allow for a comparison and analysis of the extent of medical specialisation of medical doctors, data collected by OECD includes a breakdown into three main categories and eight sub-categories, as detailed in Table 4.2. The classification of generalist medical practitioners includes general practitioners and family doctors, even if the latter may be considered a specialised domain in its own right in some countries. Doctors with this specialisation or under training to become a generalist are accorded their specific sub-category, general practitioners. Non-specialists, including medical interns and residents who have completed a basic medical university education and are undertaking postgraduate clinical training but have not yet chosen their area of specialisation, are allocated to the sub-category other generalists. The other sub-categories under specialist medical practitioners also include medical interns or residents specialising in their respective area.

**Table 4.1. Definitions of levels of activeness for medical doctors**

Practicing	Professionally active	Licensed to practice
Practising physicians provide services directly to patients.	Professionally active physicians include practising physicians and other physicians for whom their medical education is a prerequisite for the execution of the job.	Physicians licensed to practice include practising and other (non-practising) physicians who are registered and entitled to practice as health care professionals.
<p>Inclusion:</p> <ul style="list-style-type: none"> <li>- Persons who have completed studies in medicine at university level (granted by adequate diploma) and who are licensed to practice</li> <li>- Interns and resident physicians (with adequate diploma and providing services under supervision of other medical doctors during their postgraduate internship or residency in a health care facility)</li> <li>- Salaried and self-employed physicians delivering services irrespectively of the place of service provision</li> <li>- Foreign physicians licensed to practice and actively practising in the country</li> </ul>	<p>Inclusion:</p> <ul style="list-style-type: none"> <li>- Physicians who provide services directly to patients</li> <li>- Physicians working in administration and management positions requiring a medical education</li> <li>- Physicians conducting research into human disorders and illness and preventive and curative methods</li> <li>- Physicians participating in the development and implementation of health promotion and public health laws and regulations</li> <li>- Physicians preparing scientific papers and reports.</li> </ul>	<p>Inclusion</p> <ul style="list-style-type: none"> <li>- Physicians who provide services directly to patients</li> <li>- Physicians for whom their medical education is a prerequisite for the execution of the job</li> <li>- Physicians for whom their medical education is NOT a prerequisite for the execution of the job</li> <li>- Physicians licensed to practice but who due to various reasons are not economically active (e.g. unemployed or retired)</li> <li>- Physicians working abroad.</li> </ul>
<p>Exclusion</p> <ul style="list-style-type: none"> <li>- Students who have not yet graduated</li> <li>- Dentists and stomatologists / dental surgeons</li> <li>- Physicians working in administration, research and in other posts that exclude direct contact with patients</li> <li>- Unemployed physicians and retired physicians</li> <li>- Physicians working abroad.</li> </ul>	<p>Exclusion</p> <ul style="list-style-type: none"> <li>- Dentists and stomatologists/dental surgeons</li> <li>- Physicians who hold a post / job under which medical education is not required</li> <li>- Unemployed physicians and retired physicians</li> <li>- Physicians working abroad.</li> </ul>	<p>Exclusion</p> <ul style="list-style-type: none"> <li>- Dentists and stomatologists/dental surgeons.</li> </ul>

Modelling of the future supply and demand of the health care workforce is a key responsibility of ministries of health. Therefore, a disaggregation of the total number of practising physicians into age and gender classes is also applied. OECD applies a breakdown by the following age groups: under 35, 35-44, 45-54, 55-64, and above 65 with each age group further split into male and female. As discussed later in this chapter, Peru currently applies an alternative split of physician categories which might be suitable for its national policy needs, but presents some barriers to international reporting according to the categories in Table 4.2.

**Table 4.2. Physicians by category**

Main category	Sub-category
Generalist medical practitioners	<ul style="list-style-type: none"> <li>- General practitioners</li> <li>- Other generalist (non-specialist) medical practitioners</li> </ul>
Specialist medical practitioners	<ul style="list-style-type: none"> <li>- General paediatricians</li> <li>- Obstetricians and gynaecologists</li> <li>- Psychiatrists</li> <li>- Medical group of specialists</li> <li>- Surgical group of specialists</li> <li>- Other specialists not elsewhere classified</li> </ul>
Medical doctors not further defined	

### ***The evolving role of the nursing profession necessitates a greater granularity of reporting***

A number of important trends have been observed in different countries regarding the evolution of the nursing profession. Prime among these has been the increasing level of clinical responsibility taken on by nurses; often referred to as task-shifting. This practice can also take place between other professions in the health sector. Nurses are also increasingly shouldering more of the managerial tasks in different clinical settings (e.g. hospitals or ambulatory clinics). In addition, a nurse's medical specialisation is becoming increasingly important for the development of diverse health services. Many countries have developed curriculums and specialist training for nurses leading to narrower degrees of specialisation within the nursing profession.

Because the nursing profession can mean very different things depending on the country context, and also to allow for a more granular description of the complexity of staffing health services, data reporting of the numbers of nurses is separated into two categories; professional nurses and associate professional nurses. The professional nurse can work autonomously and assume responsibility for the planning and management of the care of patients, including the supervision of other health care workers. The associate professional nurse typically works under the supervision of, and in support of, other health professionals.

Although the health sector is characterised by its requirements for the licencing of professional staff, many services are also dependent on a range of other professions, most notably care personnel or personal care workers.

This category includes both health care assistants in institutions and home-based personal care workers. Health care assistants provide direct personal care and assistance to patients and residents in a variety of health care settings such as hospitals, clinics, and residential nursing care facilities. Home-based personal care workers provide routine personal care and assistance to persons in their own homes or other independent residential settings. The category excludes nurses and social workers which are separate professions. Since this is not a measure of licenced professionals but of professionally active staff, it will also include foreigners working in the sector.

### ***Statistics on educational capacity and use of staff are essential for forward-planning***

Data on educational capacity is also collected across five medical professions: medical doctors, dentists, pharmacists, midwives, professional and associate professional nurse graduates. For medical graduates, the data represents the number of students who have graduated in medicine from a medical faculty or similar institution. The definition includes the completion of basic medical education in a given year, not post-graduate studies or training. For the other professions the equivalent headcounts are the number of students who have obtained a recognised qualification in their respective field in a given year. OECD does not apply a definition of length of content of the education, although the European Union's directive may serve as a guideline.<sup>3</sup>

Information on educational capacity provides an insight into a country's ability to plan ahead and supply its health system with adequate numbers of staff into the future. In common with Peru, most OECD countries have increased educational capacity for the health sector in recent years. A standard comparison of educational capacity is the number of graduates per 100 000 population. For example, the OECD average for medical graduates is 11.5, ranging from a low of 5.1 in Israel to 20.3 in Ireland (2013). Importantly, inflows and outflows of medical staff into the health system are supplemented by analysing migration statistics of medical staff, e.g. the low level of graduates in Israel is compensated by a large inflow of foreign trained physicians.

OECD also collects data specifically on hospital employment for six types of professions: physicians, professional nurses, midwives, associate professional nurses, health care assistants, other health service providers, and other staff employed in hospitals. For these categories an important distinction is made between number of staff and full-time equivalents. It also includes non-clinical staff (e.g. administrative staff) working in hospitals.



The data allows for the description and analysis of the respective weight of staff categories in countries' health systems and can be studied in combination with other resource data, such as physical infrastructure and expenditure data.

### 4.3. Tracking human resource supply in Peru

The fragmentation of the Peruvian health system is fully reflected in the coverage and availability of data on human resources for health. Despite notable progress over the last few years, notably by the Directorate for Management and Human Resources Development in Health (DGGDRHS) at MINSA, it remains a challenge for any centrally placed authority to keep up-to-date and comprehensive statistics on the level and structure of human resources across the Peruvian health sector. This is illustrated by the observed discrepancies between Peru's medical training capacities, the relatively rudimentary data about how many are currently employed in medical facilities throughout the country, and the data based on membership of the medical association (as provided in response to the OECD questionnaire). While data are available on medical universities, nursing schools, and number of graduates, which all show an impressive increase in recent years, it is much more difficult to collect data on how many professionals are actually practicing in the country.

#### ***Records from the “public” sector only paint part of the picture of available human resources***

There are several factors which have contributed to the problem of collecting information on human resources currently working in the Peruvian health system. While MINSA maintains a constant record of what may be referred to as the “public” system, this in effect only includes SIS-funded institutions. As is the case with many other types of data, MINSA does not have automatic access to information where sub-systems are not funded or managed by the ministry. For example, the regional health authorities, the Diresas, are funded by the Ministry of Economy and Finance and hence there is no direct line of authority to the resources distributed to regions. EsSalud, which is subordinated to the Ministry of Labour and Employment, is also separately funded out of employers' and employees' contributions, and thereby independent of MINSA. While different parts of the health sector each have detailed records of their own capacity, varying definitions and modes of collection creates issues in keeping track of overall resources.

The other dimension to this problem concerns the private sector which has no reporting obligation regarding their use of resources. According to a

World Bank study from 2015, only 10% of graduates from medical schools practice in the Peruvian public health sector two years after finalising their residence training (Jiménez, 2015). There is no concrete data as to where the vast majority of graduates ends up, either into which profession, sub-specialisation, or geographically. Private sector providers do need to provide human resource capacity information in order to retrieve a licence to practice, but there is no obligation to update this regularly or report any change in staffing thereafter. Private health institutions are often regarded as part of a private market and as such have not always been subject to the same strict supervision or regulation.

There are many other factors which also exacerbate the difficulty in monitoring human health resources in the country. Peru is subject to the large migration flows in Latin America and beyond, which complicates planning of educational capacity. Data on emigration is unreliable and consequently the government is unclear to what extent medical staff work in the domestic private health sector, or have moved abroad to practice. A high percentage of medical and nursing students plan to migrate out of the country after finishing their studies, but no actual figures are available (Jimenez, 2015). This leads to difficulties in taking informed decisions about educational capacity, and in monitoring available human resources.

***Information from EsSalud and the private sector is often patchy and irregular***

As a consequence, most studies of the Peruvian health human resource situation (e.g. CRONICAS, 2014) tend to be limited to public employees, that is, only those hired by MINSa and the regional governments. A World Bank report confirmed that information on human resources working in the social health insurance (EsSalud) and the private sector is limited to current data held by the MINSa's National Observatory on Human Resources for Health, which is provided voluntarily and not necessarily on a regular basis (World Bank, 2014). The report also states that the data on human resources provided by EsSalud and other sub-schemes is of a significantly more general nature than MINSa's, i.e. it does not contain the same granularity, nor does it follow the same classifications as data collected for public institutions. While MINSa collects and publishes data on type of specialisation and gender, the data on human resources from other schemes is less informative and reliable.

Since 2012, DGGDRHS publishes an annual report on human resources supply in Peru (DGGDRHS, 2015). The publication provides a detailed description of practicing medical staff covering important aspects such as numbers of main medical staff by region, type of medical facility, and financing scheme. The publication has developed with relevant additions since

its inception, e.g. combining data on staff supply with geographical poverty levels. The ministry has developed fruitful collaboration with the regional administrations which makes much of this data possible. This report is a good example of a working relationship between MINSA and the DIRESAS when it comes to data collection and sharing. This collaboration, however, is only relevant in regards to their own data, as they are unable to offer the same quality of data for all health institutions in the country. This means that while the data collected and disseminated by DGGDRHS provides policy relevant information in terms of geographical categorisation and socio-economic groups, the data needs to be more comprehensive and offer better coverage in terms of other financing schemes and health providers.

In addition to its limited coverage of EsSalud and the other public schemes, the DGGDRHS data suffers from a persistent lack of current data on privately employed staff. Although there are data on the private sector included in the publication, this gives rather a misleading picture. The number of privately employed professionals is unrealistically small, given the size of the private sector. The reporting is transparent in that it refers to the data being based only on parts of the private sector and provides the number of establishments by type of provider. The data from private providers originates from a single collection round and the same data points are repeated in each subsequent report. The incompleteness, and the fact that it is three years older than some of the public providers' data, adds to the restricted value of the data. These limitations are in common with much of the available data on the private health institutions in Peru, be it monetary or non-monetary data.

Another shortcoming relates to how the data describes the Primary Health Care (PHC) sector. This is an area which typically varies by country since the way of organising PHC can be very different. PHC clinics can be organised in group or single doctor practices, have multiple types of professionals or only GPs, etc. MINSA documentation describes the number of SERUM<sup>4</sup> posts by geographical area and type of providers, as well as staff category. The focus on resource availability in deprived areas is very important, but there is no description of the number of specialised GPs or the number of qualified nurses working in PHC. Monitoring of resources for first-line services and maternal and child health services should be further developed.

***The mandatory reporting to SUSALUD should help plug some of the information gaps***

In a potentially significant development in countering some of the difficulties listed above, SUSALUD has assumed control over and has

gradually been introducing a revision of the infrastructure registry, RENAES, with two fundamental changes. RENAES incorporates the entire health sector, not only MINSA facilities, and involves the collection of data not only on physical infrastructure but also on human resources and equipment. The new database, RENIPRESS, is a promising initiative requiring health facilities to register, and provide information regarding their human and physical resources. Registration, which includes submission of data, is a mandatory process required in order to receive governmental accreditation and categorisation as a health establishment. This process includes inspections carried out by the regional authorities (DIREAS), and is a requirement for being able to provide care to patients. The registration process involves the provision of information on human resources (staff members are registered by the specialty, work unit, equipment (beds, furniture), infrastructure and management practices).

There are some issues to be resolved in the implementation of RENIPRESS. Facilities signed up for it during 2016, but at the end of 2016 it remained unavailable for external consultation. In addition, the way human resources data is registered in the system is based on the professional association to which the individual is affiliated. This can lead to problems in differentiating between licenced, practicing and professionally active, as described above. The possibility of a mismatch between what the staff member does in their work and their adherence to a professional association may lead to some difficulties in determining actual numbers of practising professionals.

The OECD questionnaire on Human Resources for this review asked for number of staff by the following types of medical professions; physicians, midwives, nurses, caring personnel, dentists, pharmacists, and physiotherapists. The questionnaire also contains a section on hospital employment and number of graduates for each of these categories. Table 4.3 lists a selection of the variables asked for in the Human Resource domain and the availability of this data in Peru. For a comparison of how available this data is for international comparison using the same definitions, the table gives the number of the 35 OECD member states currently submitting data for the same variable in the annual data collection undertaken by OECD.

The numbers submitted state both professionally active (*activos*) and licenced medical doctors. The former category is registered by MINSA and is available by geographical region. MINSA data covers all public institutions but has a major underestimation and timeliness issue for the number of staff in the private sector. The number of licenced medical doctors is data from the medical association (*Colegio Médico del Perú*) which is 14% higher than the number of active doctors in 2016. The licencing body in Peru (CONEAU) is responsible for accrediting education programmes and the medical

associations (*collegios*). These associations in turn licence medical staff, hence basic data on how much medical capacity is licenced in the country is available. Peru has a recertification requirement mandating renewal of licenced professions every five years, although compliance is not reliable and therefore not adequate for monitoring the number of staff.

In addition to MINSA specific human resource data, EsSalud also produces its own figures. EsSalud as part of the Ministry of Labour is independent in its internal procedures. It publishes data on human resources on its website, including a document accounting for all EsSalud employees, classified by speciality and role. Data from this is exhaustive but the document is out of date, being from 2010. EsSalud does provide data to the DGGDRSH but, as discussed above, the level of detail is limited.

Importantly, EsSalud institutions are included in the RENIPRESS system, where data is received directly from individual institutions parallel with the way SUSALUD collects data on activities (see Chapter 5). As with other types of health system indicators, there is a certain degree of alignment between EsSalud and MINSA data, but with limitations. It is important that both schemes (and ideally the private sector) conform to the same definitions and share information with the same degree of granularity to maximise its comparative value and the capacity to internationally report nationwide data.

Peru is not alone in having difficulties reporting available human resources. Examples include the difference between licenced and professionally active professionals, which is difficult to track for several countries, resulting in an over-estimation of the number of practicing doctors. Other countries can have a minimum threshold of activities for doctors to be considered to be practising, thereby resulting in an under-estimation compared with other countries. Similar to the case of Peru, some OECD countries have likely over-estimates as reporting is based on medical registers which are not updated to account for migration, retirement or death. In decentralised countries, doctors can sometimes be registered in multiple regions of the country resulting in double counting. Furthermore, in some countries, the age splits are based on all doctors licensed to practice, not only those practising. Other splits, for example by specialisation, are not possible to report in some countries due to specialty-specific data not being available for doctors in training or for those working in private practice.

**Table 4.3. Availability of data on human resources by occupational category, Peru and OECD**

OECD Indicators	OECD Specification	Peru Source	Number of OECD countries (total 35) providing data for 2013	
Physicians	Practicing	RENIPRESS (SUSALUD), DGGDRHS, ESSALUD	28 (1)	For at least one (1) category 35
	Professionally active	PA (Professional association)	23	
	Licensed to practice	RENIPRESS (SUSALUD), DGGDRHS, ESSALUD	26	
Nurses	Practicing	RENIPRESS (SUSALUD), DGGDRHS, ESSALUD	24	34
	Professionally active		22	
	Licensed to practice	PA	22	
Midwives	Practicing	RENIPRESS (SUSALUD), DGGDRHS	21	30
	Professionally active		18	
	Licensed to practice	PA (Obstetricians)	20	
Dentists	Practicing	RENIPRESS (SUSALUD), DGGDRHS, ESSALUD	21	34
	Professionally active	ENDES	18	
	Licensed to practice	PA	23	
Pharmacists	Practicing		24	33
	Professionally active		21	
	Licensed to practice	PA	21	
Caring Personnel	Practicing	-	19	22
	Professionally active		10	
Physicians by sub-specialisation		DGGDRHS (for MINSa)	35 (2)	35
Physicians by age and gender		DGGDRHS (for MINSa)	34	-
Hospital employment		DGGDRHS (for MINSa)	31 (3)	-
Graduates		DGGDRHS (via SERUM program), PA	35	-

1. For several OECD countries, the data on licenced physicians is based on administrative records, while the data on practicing and professionally active is estimated based on surveys. 2. While all OECD countries provide national data on physicians by categories of sub-specialisation, five countries do not submit data for GPs and non-specialist generalists, and another four countries for GPs only. 3. Of these, 15 countries provide data on all categories of staff, physicians, professional nurses, midwives, associate professional nurses, health care assistants, other health service providers, and other staff employed in hospitals.

#### 4.4. Measuring levels of remuneration

OECD collects data on remuneration across five categories: employed and self-employed medical doctors for general practitioners and specialists respectively, and hospital nurses. Level of remuneration is defined as annual gross income, including social security contributions and income taxes payable by the employee. For self-employed doctors all practice-related expenses should be excluded, i.e. the measurement attempts to capture income, not clinicians' revenue, even though this can be difficult to capture. Distinguishing between employed and self-employed is also difficult in many countries, as many physicians have engagements in more than one facility and these might have different legal forms.

The OECD data collection on remuneration distinguishes between two types of physicians: general practitioners and specialists. The need to attract doctors to specialise in family medicine and seek employment as generalists is shared by many countries and the ability to measure relative success given different structures and reforms is important. In many countries generalists still have lower income levels compared to specialists, although this in itself is a broad category with large variations in remuneration. For national monitoring purposes, there might be good reasons to define more narrow groups of specialists. The remuneration data on nurses is for hospital employment only, but not all countries can specify this. The type of nurse is not specified and some countries include income only for professional nurses, excluding associate professional nurses and/or nursing assistants.

#### ***International comparisons are susceptible to differing treatment of taxes, contributions and bonuses***

Producing data on income levels which are relevant for international comparison remains a challenge for many countries. Differences in tax regimes and social security payments make direct comparisons complicated. In reporting to OECD, several countries treat the inclusion of payments for overtime work, bonuses and benefits, other supplementary income or social security contributions differently. Another difficulty for many countries is collecting remuneration levels from private providers, which tends to underestimate the average data because salaries in private facilities are often higher. Private providers can also represent another set of health services and thereby require different specialties employed and average levels become non-comparable. For countries where informal payments are part of the culture, data is also systematically underestimated.

One indicator used to mitigate some of these problems is the medical professionals' income as a share of the average income in the country.

OECD uses its Labour Force Statistics Database to calculate the ratio of medical staff income to the average income of full-time employees in all sectors of the country. In all countries submitting this data to OECD, medical doctors have a higher income than the average employee. The differences are large though, ranging from 1.5 times in Estonia to 4.6 times in Luxembourg for general practitioners. Nurses' income tends to be just above average income in the OECD but also varies considerably, from 0.9 to 1.6 times the average income.

### ***Salary estimates for Peru are limited to legislated rather than actual salaries***

In response to the questionnaire for this health statistics review, Peru submitted data for all the three staff categories of salaried staff; GPs, specialists, and hospital nurses. However, it is unclear if by GPs this refers to specialists in Family Medicine, or non-specialist generalists. The data makes it possible to build indicators of relative salaries, especially important for analysing how supply of staff is distributed within the health sector. This data is however based only on staff employed by MINSA and regional administrations' providers, excluding other government institutions, EsSalud and the private sector. In addition, the salary level is based on what is legislated, not actual remuneration.<sup>5</sup>

**Table 4.4. Available data on remuneration levels, Peru**

Variables submitted	Submitted by Peru in response to OECD questionnaire	Number of OECD countries providing data for 2013
Remuneration, salaried GPs	✓	14
Remuneration, salaried Specialists	✓	24
Remuneration, salaried hospital nurses	✓	25
Remuneration, self-employed GPs		8
Specialists, self-employed		5

As with data on numbers of staff, sources of information on income are very patchy. This is a result not only of the diversity in funding and provision, but also of the different employment contracts that exist in the public sector. There are a wide range of contracts, with large differences in salary and benefits. Permanent contract “276” are paid much better than temporary contracts (e.g. RECAS), and with different employment benefits attached. Within each type of contract it is relatively easy to collect data on formal salaries since they adhere to an official pay-scale by medical professions and remuneration data is collected for public facilities. The pay



scale is the same for all areas of service in the country, regardless of whether the area is rural or urban, socially deprived, etc. This in itself implies a rigid management HR system with low level of provider autonomy, which doesn't assist in rational human resource planning, e.g. raising salaries in deprived, difficult to recruit areas. There is no other system to collect data on remuneration levels which means private employees and professionals working in multiple assignments are not captured. In addition, there is often a mismatch between what employees are legally entitled to receive and their actual remuneration. For example, salary increases introduced in recent legislation have experienced some delays in their actual implementation.

Other possible sources of information on health professional's remuneration are SUNAT and AFP. SUNAT is the body responsible for tax administration and is part of MEF. It provides information on the salary of private institutions staff since all private entities must report remuneration information to them. However, this does not apply to physicians. On the other hand, the AFP (*Administradoras de Fondo de Pensiones*) is the body responsible for the administration of pension funds, and collects information from privately employed physicians in order to determine their contribution based on their remuneration, although its scope is again limited, since this only applies in certain cases, dependent on the type of contract.

#### 4.5. Physical resources in the health system

In addition to human resources which are the main cost driver in health spending, OECD collects data on three areas of physical resources in the health sector: hospitals, beds and technical equipment. Monitoring of data on hospitals and beds provides information on structural costs and is widely used to derive basic efficiency indicators such as length of stay, discharges per bed and others. Medical equipment is also widely used for efficiency measurement since the use of expensive equipment can vary considerably, e.g. number of tests per unit. It can also be used as an indicator of quality or access to services in some instances, e.g. diagnostic tests per 1 000 population. These indicators are focusing on hospital resources and since these tend to be inequitably distributed with a bias to urban and areas served by private specialist providers, the data can also be used for indicators of equity in access to advanced care. In Peru's health system which contains such a variety of ownership and affiliations, the need to monitor and analyse efficiency differences is warranted, just like measuring differences in quality.

### ***Classifications of resources take their lead from health accounting to ensure proper linkage with expenditures***

The classification of hospitals for international data collections follows the definitions set out in the provider classification, ICHA-HP (International Classification of Health Accounts – Healthcare Providers) of the System of Health Accounts (SHA) 2011 (OECD, EC and WHO, 2011), with general hospitals, mental health hospitals and other specialised hospitals. An additional ownership categorisation is used, such that both the number of hospitals and number of beds are separated into publicly-owned hospitals, not-for-profit privately owned hospitals and for-profit privately owned hospitals as follows;

- Publically owned hospitals are owned or controlled by a government unit or another public corporation (whereby control is defined as the ability to determine the general corporate policy).
- Not-for-profit privately owned hospitals are legal or social entities created for the purpose of producing goods and services, whose status does not permit them to be a source of income, profit, or other financial gain for the unit(s) that establish, control or finance them.
- For-profit privately owned hospitals are legal entities set up for the purpose of producing goods and services and are capable of generating a profit or other financial gain for their owners.

The specification of ownership for hospitals is of high policy relevance in many countries. In the case of Peru, the international classification and terminology is relevant for classifying hospital beds by the different sub-schemes of the country. Publicly-owned hospitals refer to hospitals that are owned or controlled by a government unit or another public corporation. This means that all hospitals belonging to EsSalud are also public entities, and should be classified accordingly.

Hospital beds are further specified according to a functional classification which also follows the definitions of SHA. It defines five categories of beds;

- Curative care beds.
- Psychiatric care beds.
- Long-term care beds.
- Other hospital beds (which include beds which have a rehabilitation purpose).
- Nursing or long-term care beds.

Long-term care facilities primarily provide residential long-term care that combines nursing and supervisory care, with a significant part of the care being nursing care and social services. Data on physical bed resources complement the collected data on health expenditure and allow for comparison of how different countries invest in hospital services.

Data on medical technology is also specified along two dimensions. The first is the equipment specified by eight categories (listed below). These units are further distributed by type two types of providers, hospitals and ambulatory providers (again following the SHA ICHA-HP classification). The number of available units for each type of equipment is collected. In the data collection of activities (Chapter 5), the number of examinations provided by each of the first three types of equipment listed below is reported. This makes it possible to compare not only the availability of medical equipment, but also how much these are used. This is a common efficiency indicator also in comparing individual providers in a country.

- Computed Tomography scanners (CT units)
- Magnetic Resonance Imaging units (MRI units)
- Positron Emission Tomography scanner units (PET units)
- Gamma cameras
- Digital Subtraction Angiography units (DSA units)
- Mammography machines
- Radiation therapy equipment (Number of machines used for treatment with x-rays or radionuclide)
- Lithotriptors (or shock-wave lithotripsy units; LSI units)

The ability of countries to submit full data on this range of equipment varies with hospital beds typically being the most complete type of data available. Peru submitted data on hospital beds, although the coverage of data remains incomplete. The relevance for domestic policy use of collecting such data falls into two domains. First, following international classifications will allow Peru to consistently compare resources over time with other countries in the region, for example being able to compare the number of beds by function with countries like Mexico, Chile, Colombia and Costa Rica. The other domain is internal comparison across the country and between sub-schemes, which can be a vital complement to indicators like density of doctors and financial resources, when assessing access to hospital services. For national purposes, more granular data is needed than what is normally reported to OECD.

## 4.6. Tracking physical resources in Peru

For the purposes of this review, data was requested on hospitals and facilities, hospital beds and on medical technology/equipment. MINSA supplied data on the number of hospitals and beds, extracted from RENAES, the registry of national health establishments, a web platform described in more detail in Chapter 2. This web-platform allows the DISAs and DIRESAs to monitor the status of facilities and medical equipment. However, this only applies to MINSA facilities and excludes other sub-schemes.

### ***RENIPRESS has the potential to deliver nationwide estimates of the number of beds by sub-scheme***

In the future, RENIPRESS has the potential to be a more comprehensive repository accounting for all health facilities, as it includes all sub-schemes, including EsSalud and private providers. It includes not only beds but other physical and human resources.

The data reported on number of beds referred only to those in institutions owned by MINSA. These are classified by two types of beds, psychiatric and non-psychiatric (curative) care beds. Long term care beds are not reported since, as stated in the response, there are none in Peru. Although not included in the questionnaire response, EsSalud also collects data on hospital beds from its facilities, which are reported online on a monthly basis. In addition to the data from these two institutions, WHO compiled information on physical and human resources in the Peruvian mental health sector in 2011, providing the most recent figure on psychiatric beds for all sub-schemes (WHO, 2011).

Considering data for MINSA and EsSalud facilities are not reported in the same way, and possibly not aligned in definitions, data on bed resources generally, and especially by function of care, is very limited. The number of beds is included in RENIPRESS for all sub-schemes, including private beds. However, this data will not become publicly available until early 2018 at the earliest, as SUSALUD is currently collecting this information from health care centres. Since this is a centralised record, RENIPRESS can potentially become a repository with national coverage.

Regarding data on medical technology, Peru has very little compiled information available. Regularly available information on CTs and MRIs is reported to MINSA as part of the reimbursement system for services. It is unclear if this information includes only the price per service and number of procedures, or if also the number of available units is included. Similarly, EsSalud has data on procedures using technological equipment but no

information on the numbers of equipment. Currently there is an ongoing project by the General Directorate of Infrastructure, Equipment and Maintenance in MINSA aiming to evaluate equipment shortages in health facilities, which includes collecting data on available medical technological equipment, although the result has not been accessible for this review.

Effective governance of expensive equipment is essential, and collecting data on this is a prerequisite. The complicated structure of ownership with a separate ministry in charge of capital investments, many health facilities belonging to yet another ministry, and others in private ownership, leads to risks of non-optimal investment and use of expensive equipment. Keeping track of the number of units and their use is not enough to improve efficient use if the incentives are not in place for the individual providers to share resources. But currently there is no ability at all to assess total investments and use of costly equipment, and other capital investment. A key recommendation to increase health system efficiency is to promote cross sector exchanges. Improved ability to keep track of basic physical investments can support allocation decisions and a rational use of resources.

#### 4.7. Conclusions

Peru needs to develop a reporting system for all available human resources which allows for a regular monitoring of the main medical staff categories. This system need not necessarily be under the responsibility of MINSA, but its information should be freely available to analysts and policy makers at the ministry. Just like much of the governance and stewardship in the health sector, the system must be built on the inclusion of all actors; regardless of whether they are publically or privately owned and funded, that is to include all staff, regardless of their affiliation. Reaching compliance with reporting requirements would need to be accompanied with harmonised definitions across sub-schemes. A system such as RENIPRESS would appear to fulfil many of the needs, although a full assessment has not been possible within this review.

Peru produces and disseminates data on many policy relevant aspects of human resources, such as availability by geographical area, remoteness and a basic split of competence. While there has been an effort to collect this data from various institutions, the stringency of the data at source is more questionable. It is not stated if the number of staff is practicing clinicians or generally professionally active, if it's a head count or full-time equivalents (FTE) or if its end-of-year data. This raises questions about whether the various institutions providing data follow the same definitions. The different sources might for example have dividing definitions of what qualification a medical doctor must have to practice, which affects the numbers reported.

While the licencing and recertification system is essential for patient safety, it can potentially also provide information for resources planning. Peru should strengthen compliance with recertification rules. Data on workplace for active staff could for example inform about human resources available by type of facility and sub-scheme. Today's information published by MINSA has adequate splits, e.g. in terms of geography, but lacks comprehensiveness.

In order for Peru to find a system which allows policy makers to have adequate data on the total number of staff by categories, the migration of health workforce must be captured. There are different ways of achieving this. One is to work closer with the Bureau of Immigration and Naturalisation (DIGEMIN) on improved quality of migration data. But the aim is not necessarily to understand how many leave or enter the country, but how many are available to the system. Therefore an alternative is to enable links between a licence register and a provider register. Improving these two types of registers would also have many other advantages.

Data on PHC or first-line services, as well as maternal and child health services (MCHC) should be further developed. Currently in Peru, a lot of this area of services is captured in surveys. But there are potential to strengthen administrative data on resources which can be valuable for monitoring. For example, clarifying staff categories working with these services, make them internationally comparable, and including all service providers, would complement survey data on access and use of PHC and MCHC services.

Data collection on income and salary is difficult in many countries. Given the differences in the different sub-schemes of the Peruvian health system, and the wide geographical variety in prerequisites and actual care across the country, basic but consistent data collection on income could be useful information in human resource policy formulation.

MINSA needs to strengthen the regulatory framework for data collection on resources. This could be for example by using RENIPRESS as the overarching platform for physical resource data of all sub schemes. Because physical resources generally, and more specifically investment in infrastructure, is so dependent on several different ministries, the system cannot rely on reporting to funding institutions which do not have responsibility for monitoring the health sector. There need to be access to consolidated, consistently defined and relevant data for a government body which has an oversight.

Peru does not have a functional view of what is classified as public and private. At least for international purposes, the notion of public and private should follow international classifications. For example, the definition of

public and private providers could follow the definition used for hospitals in this chapter; publically owned hospitals are owned or controlled by a government unit or another public corporation (where control is defined as the ability to determine the general corporate policy). From this follows that public hospital beds include all beds in the EsSalud, and health agencies under any line ministry of government, as well as all beds owned by local authorities.

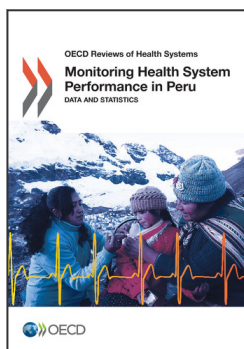
## Notes

1. Refers only to MINSA facilities only in 2015.
2. The categories build on the classification International Standard Classifications of Occupations (ISCO) by the International Labour Organisation (ILO), See <http://www.ilo.org/public/english/bureau/stat/isco/docs/health.pdf>.
3. In the European Union, a Directive has defined basic medical training as comprising a total of at least six years of study or 5 500 hours of theoretical and practical training provided by, or under the supervision of, a university (article 24, Directive 2005/36/EC of the European Parliament and of the Council).
4. SERUM is a programme that aims to improve health provision in the most deprived areas of the country, both rural and poor urban where recruitment is difficult. As a requisite to become a MINSA doctor or nurse, study for a specialisation or receive funding to study abroad, participating in the SERUM is mandatory.
5. Legilastivo Decree No. 1153.



## References

- CRONICAS – Centro de Excelencia en Enfermedades Crónicas (2014), “Análisis del Mercado Laboral de Salud en Perú”, Final report, Lima. Universidad Peruana Cayetano Heredia.
- DGGDRH (2016), “Información de Recursos Humanos en el Sector Salud”, Dirección General de Gestión y Desarrollo de Recursos Humanos – MINSA, Lima.
- INEI (2014), “Encuesta Nacional de Hogares (National Household Survey)”, Instituto Nacional de Estadística e Informática.
- Jiménez, M., M. Eduardo et.al. (2015), “Analysis of the Health Care Labor Market in Peru”, International Bank for Reconstruction and Development / The World Bank.
- OECD (2017), “OECD Health Statistics 2017”, online database. <http://stats.oecd.org/>.
- OECD/WHO/Eurostat (2011), *A System of Health Accounts 2011: Revised edition*, OECD Publishing, Paris, <http://dx.doi.org/10.1787/9789264270985-en>.
- WHO (2011), *Mental Health Atlas 2011*, World Health Organization, [http://www.who.int/mental\\_health/evidence/atlas/profiles/per\\_mh\\_profile.pdf](http://www.who.int/mental_health/evidence/atlas/profiles/per_mh_profile.pdf).
- World Bank (2014), “Universal Health Coverage for Inclusive and Sustainable Development”, Country Summary Report for Peru.



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