

► What labour force survey data can tell us about the workforce in the health and social care sector

A review of data from 56 countries



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Foreword

Health systems all around the globe continue to face challenges in recruiting, deploying, retaining and protecting sufficient well-trained, supported and motivated health workers. Even before the COVID-19 pandemic, the UN High-level Commission on Health Employment and Economic Growth (Commission), established by the UN Secretary-General in March 2016, pointed to a shortfall of 18 million health workers by 2030, primarily in low- and lower-middle-income countries. The Commission emphasized the need to recognize the health sector as a key sector, a growing source of jobs and a driver of inclusive economic growth and called for sustainable investments, including in decent work for health workers. The COVID-19 pandemic demonstrated the critical importance of the health workforce for societies and the urgency to invest in decent jobs in the health sector.

Securing timely and reliable data on the health workforce is key for monitoring, planning and accountability purposes of the health sector and its workforce. Against this backdrop, the Commission requested ILO, OECD and WHO as well as other relevant partners to establish a global Inter-Agency Data Exchange (IADEX) that supports research on and analysis of health labour markets, using harmonized metrics and methodologies to strengthen evidence, accountability and action. IADEX aims to consolidate and maximize the value of existing health workforce data and information, ensuring greater consistency and reducing data collection burden on countries.

The International Labour Organization (ILO) is the United Nations specialized agency dedicated to advancing opportunities for women and men to obtain decent and productive work in conditions of freedom, equity, security and human dignity. The ILO is the leading source of labour statistics and supports the development of international standards for better measurement of labour issues and enhanced international comparability. The ILO Sectoral Policies Department addresses the needs and challenges of specific economic and social sectors. In the health sector, it supports the improvement of working conditions and labour relations in the health sector through sectoral labour standards and social dialogue and collaborates with other UN agencies and partners to promote supportive, enabling and healthy work environments for the health workforce, including through the ILO-OECD-WHO Working for Health Programme.

Labour Force Survey (LFS) data for the health sector provide information contributing to a better understanding of health labour market aspects such as the share of the health sector in a country's overall employment, the occupational composition of the workforce, employment status, working conditions, gender issues and geographical distribution. To generate such detailed information, the identification and analysis of relevant datasets held in the ILO LFS microdata repository is therefore an essential part of the ILO contribution to the IADEX work.

The present report describes the results of a special analysis of data from the Labour Force Surveys (LFS) of 56 countries which provided data about health and social care workers in sufficient detail to distinguish between different occupational groups within the workforce. The report covers analyses for 29 countries in Europe and 27 from other regions of the world. It focuses on topics for which LFS are acknowledged to be one of the most reliable data sources, such as workers' demographic characteristics and working conditions. It should be noted that the data featured in this analysis relate to the situation prior to the COVID-19 pandemic, and therefore do not reflect the impacts of the pandemic on the health workforce.

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Abbreviations and acronyms

ComHEEG	United Nations Secretary-General's High-Level Commission on Health Employment and Economic Growth
IADEx	interagency data exchange
ILO	International Labour Office/Organization
ILOSTAT	ILO central statistical repository
ISCED	International Standard Classification of Education
ISCO	International Standard Classification of Occupations
ISIC	International Standard Industrial Classification
(Lao) PDR	(Lao) People's Democratic Republic
LFS	labour force survey(s)
LMICs	low- and middle-income countries
NHWA	National Health Workforce Accounts
NSFE	non-standard forms of employment
OECD	Organisation for Economic Co-operation and Development
SDGs	Sustainable Development Goals
UAE	United Arab Emirates
UHC	universal health coverage
UN	United Nations
W4H	Working for Health
WHA	World Health Assembly
WHO	World Health Organization

Glossary of terms

Term	Definition (source)
Density (of health workers)	The number of health workers per 10,000 population in any given country. This is calculated by dividing the number of health workers by the population size for that country and year (WHO 2017a).
Earnings/pay	Earnings/pay relates to gross remuneration in cash and in kind paid to employees, as a rule at regular intervals, for time worked or work done, together with remuneration for time not worked such as annual vacation, other types of paid leave or holidays. It includes direct wages and salaries, remuneration for time not worked (excluding severance and termination pay), bonuses and gratuities and housing and family allowances paid by the employer directly to the employee. It excludes employers' contributions in respect of their employees paid to social security and pension schemes and also the benefits received by employees under these schemes (ILO, n.d.-a).
Employee	An Employee is defined as a person who works for a public or private employer and receives remuneration in wages, salary, commission, tips, piece-rates or pay in kind (ILO 1993).
Employment ¹	The 13th ICLS defines persons in employment as consisting of all persons above a specified age in the following categories: (a) at work: persons who performed some work for pay or profit during a specified brief period, either one week or one day; (b) with a job but not at work: persons who, having already worked in their present job, were temporarily absent during the specified period because of illness or injury, industrial dispute, vacation or other leave of absence, absence without leave, or temporary disorganisation of work due to such reasons as bad weather or mechanical breakdown (ILO 1982). The 19th ICLS defines persons in employment as all those of working age who, during a short reference period, were engaged in any activity to produce goods or provide services for pay or profit. They comprise: (a) employed persons "at work", i.e. who worked in a job for at least one hour; (b) employed persons "not at work" due to temporary absence from a job, or to working-time arrangements (such as shift work, flexitime and compensatory leave for overtime) (ILO 2013).
Full-time employment	The definition of full-time varies by country. For statistical purposes, it is commonly defined as a specified number of hours. The threshold which divides workings into full-time and part-time workers is usually either 30 or 35 hours per week. In this report, the incidence of full-time employment is based on the classification provided by countries.
Gender pay gap	The difference between median hourly earnings of men and median hourly earnings of women expressed as a percentage of median hourly earnings of men.
Hours worked	Hours worked can be understood as size classes for distinguishing between different categories of persons working few hours, part-time, full-time or long hours, e.g. less than 8; 9–15; 15–34; 35–39; 40–47; 48–56; 59 and more hours during a defined observation period of a week, month, quarter, season or year (ILO 1982).
International Standard Classification of Occupations	An international classification for organizing jobs into a clearly defined set of groups according to the tasks and duties undertaken in the job (ILO 2012).
International Standard Industrial Classification	An international standard for classifying data according to kind of economic activity in the fields of production, employment, gross domestic product and other statistical areas. This type of classification refers to the main activity of the establishment in which a person worked during the reference period, or last worked if unemployed. The branch of economic activity of a person does not depend on the specific duties or functions of the person's job, but on the characteristics of the economic unit in which this person work (UN 2007).

¹ Most countries covered in this report used the 13th ICLS definition of employment (ILO 1982) whereas 5 countries, namely Lao PDR, Myanmar, Nepal, South Africa and Zambia used the 19th ICLS definitions (ILO 2013). Consequently, related definitions, such as jobs, full-time and part-time employment, hours worked and working age are based on the respective framework used.

Term	Definition (source)
Job	A job or work activity is defined as a set of tasks and duties performed, or meant to be performed, by one person for a single economic unit. The term job is used in reference to employment. Persons may have one or several jobs. Those in self-employment will have as many jobs as the economic units they own or co-own, irrespective of the number of clients served. In cases of multiple job-holding, the main job is that with the most hours usually worked, as defined in the international statistical standards on working time (ILO 2013).
Labour force	The 13th ICLS divides the labour force into two categories: the "paid labour force" and the "not paid labour force". The "paid labour force" is meant to comprise all in paid employment or seeking and (or) available for such employment. In general, it covers all persons who are directly remunerated for their contribution to the production of economic goods and services. "Not paid labour force", covers all other persons in the civilian labour force who derive remuneration in the form of entrepreneurial income for their contribution to the production of economic goods and services (ILO 1982). The 19th ICLS defines the concept labour force as the current supply of labour for the production of goods and services in exchange for pay or profit. It includes persons (a) in employment; (b) in unemployment; or (c) outside the labour force (ILO 2013).
Microdata	Unit-level data obtained from sample surveys, censuses and administrative systems, which provide information about characteristics of individual people or entities.
Own-account worker	Own-account worker is defined as a person who operates his or her own economic enterprise, or engages independently in a profession or trade, and hires no employees (ILO 1993).
Part-time employment	The definition of part-time varies by country. For statistical purposes, it is commonly defined as a specified number of hours. The threshold which divides workings into full-time and part-time workers is usually either 30 or 35 hours per week. In this report, the incidence of part-time employment is based on the classification provided by countries.
Personal care worker	Personal care workers in health services provide personal care and assistance with mobility and activities of daily living to patients and elderly, convalescent and disabled people in healthcare and residential (including home-based) settings (ILO 2005).
Public-sector employment	Persons employed by public authorities at central, regional and local levels, including both civil servants and public employees (ILO 2023).
Rural	See "urban/rural".
Urban / rural	Because of national differences in the characteristics that distinguish urban from rural areas, the distinction between the urban and the rural population is not yet amenable to a definition that would be universally applicable. Countries usually establish their own definitions in accordance with their own needs. The traditional distinction between urban and rural areas within a country has been based on the assumption that urban areas, no matter how they are defined, provide a different way of life and usually a higher standard of living along with a higher concentration of population than are found in rural areas (UN 2017a).
Working age	Aged 15 and over (ILO 1982).

Executive summary

Background

Published in 2016, the WHO *Global Strategy on Human Resources for Health* estimated that, without additional investment in the health and social care workforce, there would be a global shortfall of 18 million health workers by 2030, mostly affecting low- and middle-income countries. The “Working for Health” (W4H) programme is a joint initiative by the International Labour Organization (ILO), the Organisation for Economic Co-operation and Development (OECD), and the World Health Organization (WHO). The W4H programme was established in 2017, with a mission to assist countries in the *expansion* and *transformation* of the health and social care workforce in order to address workforce shortages and accelerate progress towards universal health coverage and global health security.

Assessment of the scale and nature of the global health worker shortage and other health workforce issues is confounded by a lack of high-quality data on the health and social care workforce. Global partners have responded to this challenge by establishing systems for monitoring, using and reporting workforce statistics, using harmonized metrics and methods to facilitate international comparisons.

Given the number of different agencies engaged in this activity, in 2018 the W4H programme established an interagency data exchange initiative (IADEx) to improve the availability, analysis, dissemination and use of health workforce data.

This report is one ILO contribution to the IADEx. It describes the results of a special analysis of data from the labour force surveys (LFS) of 56 countries which provided data about health and social care workers in sufficient detail to distinguish between different occupation groups within the workforce. Of the 56 countries featured in the report, 29 are in Europe and 27 from other regions of the world. It focuses on topics for which LFS are acknowledged to be one of the most reliable data sources on workers’ demographic characteristics and working conditions.

It should be noted that the data featured in this analysis were reported before the COVID-19 pandemic, and therefore do not reflect the impacts of the pandemic on the health workforce. It will take some time for the exact scale and nature of the impacts to become clear, so it will be important to consider these issues again in the future.

Results

The health and social care workforce within the wider labour force

In most countries in northern and western Europe, the health and social care workforce (including all health professionals, associate professionals, and personal care workers) accounted on average for more than 7 per cent of the total labour force. In the

other reporting countries, the health and social care workforce accounted for a smaller percentage. In low- and lower-middle-income countries, it was typically between 1 and 3 per cent of the total labour force.

There is no global recommendation on the ideal profession mix within the health and social care workforce: it will depend on the country context. Physicians typically made up 10-20 per cent of the health and social care workforce. In European countries, nurses and midwives typically accounted for 20-30 per cent of the health and social care workforce, and in other countries about 20-40 per cent. Personal care workers were a relatively large group, especially in Europe.

In most countries, the majority of health and social care workers – and nearly all physicians, nurses and midwives – worked within the health and social care sector. In some countries, however, a significant minority worked in other sectors such as public administration, retail (especially pharmacists working in community pharmacies) and education. In a few countries in Europe and the Americas, it was common for personal care workers to work in private households.

Health and social care workforce demography

Women in the health and social care workforce tend to face more significant barriers to full-time employment, leadership positions and career progression than men, despite the fact that most health and social care workers are women. Gender-transformative policy and action is therefore required to address the global health and social care worker shortage and gender-related workplace challenges, for instance to address occupational segregation and gender pay gaps, and to establish workplace measures to better accommodate family-responsibilities, mostly borne by women.

Only three of the 56 countries featured in this report had more men than women in the health and social care workforce, all in the Eastern Mediterranean region where women's labour force participation is generally low. The preponderance of women in the workforce is mainly due to large numbers of nurses, midwives and personal care workers. In most European countries, however, women outnumbered men, even in the physician workforce.

The age profile of the workforce can be an indicator of future availability and the effectiveness of worker

retention strategies. In several countries outside Europe, the age profile of the health and social care workforce was very youthful, except for a few countries in the Americas in which the physician workforce had a relatively high average age. A high average age – mostly affecting physicians – was also evident in several European countries, especially in eastern Europe.

For universal health coverage to be achieved, rural populations must have the same access to health workers as urban populations. However, in most countries – especially low- and middle-income countries – health and social care workers tended to be located in urban areas, even if there is a majority rural population. This was especially true for physicians.

Good quality education and training for health and social care workers is a prerequisite for high-quality health and social care. In most countries, the vast majority of physicians, and at least half of nurses and midwives, had been educated to tertiary level. This left a large number of nurses and midwives with lower levels of education.

Employment and working conditions

The sustainable development goals (SDGs) recognize decent work as a central factor in ensuring inclusive economic growth and its contribution to social progress. Decent work involves: employment opportunities, social protection, rights at work, and social dialogue. Decent work deficits are known to

contribute to health workforce shortages. As the COVID-19 pandemic highlighted, social protection and a safe and healthy working environment are critically important for the retention of qualified health workers.

In most reporting countries, most health and social care workers worked full-time (35 hours or more per week), but in many countries a large percentage worked part-time. Part-time workers should be accorded equivalent pay (*pro rata* to their working hours), working conditions and employment rights as full-time workers. Typically, women health workers were more likely than men to work part-time, but in several countries the opposite was true. Adequate protection for the rights of part-time workers is therefore an important element of gender equity.

The ILO advocates for 40 normal working hours per week. In most European countries, the median working week for health and social care workers was below 40 hours for most health and social care occupations, but above 40 hours for physicians. In most of the reporting countries in other regions it was the norm for all types of health and social care workers to work more than 40 hours per week. In most reporting countries, men worked more hours than women on average.

In most countries, health and social care is provided by a mix of the public and private sectors. In 16 of the 28 countries providing data on this indicator, the majority of the health and social care workforce

worked in the public sector, in six countries the majority worked in the private sector, and in six countries there was an equal mix of the two. In most countries, physicians and personal care workers were more likely than nurses and midwives to work in the private sector.

Temporary contracts can help healthcare providers to be more responsive to changing demands, but they can expose workers to decent work deficits. In most countries, most health and social care workers had permanent contracts, but in some countries temporary contracts were the norm, especially for personal care workers. Similarly, in most countries the majority of health and social care workers were employees, but in a few countries there were large numbers of “own-account” workers in the workforce, most commonly physicians.

Gender pay gaps exist for many reasons and are a pervasive problem across many industry sectors, and health and social care is no exception. A gender pay gap was evident within the health and social care workforce of most countries featured in this report, most strikingly in the Americas. The gender pay gap applied more often to physicians and personal care workers than to nurses and midwives.

Conclusions

The use of detailed occupation information from LFS data provides useful insights into the characteristics and working conditions of the health and social care workforce, which are rarely available from other data sources. For example, this report provides estimates of the percentage of health and social care workers working outside the health and social care sector,

and highlights specific health occupation groups and countries which are at heightened risk of decent work deficits and demographic imbalances. As this report analyses data reported before the pandemic, further analysis is recommended with updated data to reflect on the impact of the pandemic on the health and social care workforce.



1

Introduction

► 1.1 Background

The 2006 World Health Report (WHO 2006) emphasized that good health can be achieved only with a health workforce of adequate size and with adequate skills and competencies, and drew attention to a massive global health workforce crisis (see also McQuide et al. 2009). Since then, there has been increasing recognition of the importance of investing in the health workforce as part of efforts to achieve universal health coverage (UHC) (Micah et al. 2018).

► Box 1. Global health workforce

18 Estimated Global Shortfall
of Health Workforce by 2030
MILLION Mostly affecting low and middle-income countries



Source: WHO 2016a

The year 2016 was a significant one for global health workforce policy: the *Global Strategy on Human Resources for Health* was developed by the World Health Organization (WHO) and adopted by the World Health Assembly (WHA). The strategy outlines policy options and recommendation on how to: (1) optimize the health workforce to accelerate progress towards UHC and the Sustainable Development Goals (SDGs); (2) understand and prepare for future needs of health systems, harnessing the rising demand in health labour markets to maximize job creation and economic growth; (3) build the institutional capacity to implement this agenda; and (4) strengthen health workforce data for monitoring and ensuring accountability of implementation of both national strategies and the WHO *Global Strategy* itself (WHO 2016a). The WHO *Global Strategy* estimated that without additional investment in the health and social care workforce, there would be a global shortfall of 18 million health workers by 2030,

mostly affecting low- and middle-income countries (LMICs).

In 2016, the United Nations Secretary-General's High-Level Commission on Health Employment and Economic Growth (ComHEEG) was convened to identify strategies to avert this projected shortfall and to guide action on the unprecedented global demand for health and social sector jobs in wealthier economies. In its report, ComHEEG concluded that health workforce investments – coupled with the right policy action – could result in enormous socio-economic gains (WHO 2016b). It thus provided fresh impetus for countries to implement the WHO *Global Strategy*.

ComHEEG made ten recommendations and outlined five immediate actions for expanding and transforming the health workforce. One of the immediate actions was the development of a five-year action plan for the period 2017–21, which was duly adopted by the WHA in 2017 (WHO 2017b) and entitled “Working for Health” (W4H). As a follow-up, the W4H programme was established jointly by the International Labour Organization (ILO), the Organisation for Economic Cooperation and Development (OECD), and WHO. The W4H programme assisted countries and constituents in the implementation of the 2017–21 five-year action plan (OECD 2021a). Its objective was to leverage the convening power and mandates of the UN and OECD to expand and transform the health and social workforce to drive inclusive economic growth and achieve the SDGs, especially SDGs 3 (health and well-being), 4 (education), 5 (gender equality), and 8 (decent work and economic growth). Of particular note is SDG target 3c: “substantially increase health financing and the recruitment, development, training and retention of the health workforce in developing countries” (UN 2015).

Assessment of the scale and nature of the global health and social care workforce shortage is confounded by a lack of high-quality workforce data systems, especially in LMICs (Campbell, Dussault, and Buchan 2013). Health workforce data strengthening is one of the four key objectives of the WHO *Global Strategy*, and there have been numerous calls for more investment in health workforce data and interoperable data systems.² One of ComHEEG's

² See for example: Pozo-Martin et al. 2017; Castro Lopes et al. 2017; Gedik et al. 2018; Gillam et al. 2020; Gupta 2019; Kroezen, Van

Hoegaerden, and Batenburg 2018; Kuhlmann et al. 2018; Laugesen 2015; *The Lancet* 2016; Tilson 2014.

recommendations related to the strengthening of health workforce data, information and accountability by using harmonized metrics and methodologies. Attempts to use such metrics and methods to document the size and characteristics of the world's health workforce have achieved some success, but even the more recent global reports on the health workforce include caveats about the availability and quality of data from many countries (UN Population Fund 2021; WHO 2020). Global partners have responded to this challenge in several ways. WHO Member States have approved National Health Workforce Accounts (NHWA) as an approach to strengthening national systems for monitoring, using and reporting workforce statistics along the health labour market framework (WHO 2019a; see also Sousa et al. 2013). WHO has published technical guidance on conducting a health labour market analysis (WHO 2021a). The OECD along with Eurostat and the WHO-Europe office have carried on annual joint data collection on health workforce (including on health workforce migration) since 2010 based on international standard classifications and harmonized definitions, and report these data in their respective databases. The ILO also maintains online statistics databases which include health workforce indicators from numerous countries (ILO 2021a; OECD 2021b).

Given that several agencies are involved in the collection, collation and analysis of health workforce data, another of ComHEEG's five immediate actions was the establishment of an interagency data exchange (IADEx) for the health labour market, and this was established in 2018 under the W4H programme. The objectives of the IADEx are: (1) to establish and strengthen partnerships and mechanisms for improved availability, analysis, dissemination and use of health workforce data, with the aim of consolidating and maximizing the value of existing data and information, ensuring greater consistency and reducing data collection burden on countries; and (2) to increase countries' capacity in gathering, monitoring and using health workforce data. It thus aligns with the UN Development Assistance Framework results framework (UN 2017b), specifically on the co-creation, generation and use of data in support of country-specific priorities.

The WHO Global Strategy established periodic reporting requirements, and the next update to the WHA is due in 2022. Milestone 4.3 of the Global Strategy states that by 2020, "All bilateral and multilateral agencies have participated in efforts to strengthen health workforce assessments and information exchange in countries." Through the W4H IADEx initiative, ILO, WHO and OECD are jointly contributing to this strategic goal.

► 1.2 Methods used in this report

The ILO holds microdata for over 150 countries in a database which is used primarily to feed the labour market-related indicators on the ILOSTAT portal (ILO 2021a). In 2019–20, the ILO commissioned a special analysis of these data, with a view to gaining a more detailed understanding about specific health and social care occupation groups than has previously been available. The data were collected using labour force surveys (LFS) or similar, and were supplied by countries in an anonymized format, without personal identifiers such as names, addresses or dates of birth. The ILO has a series of procedures to standardize the wide array of variables into a common format to facilitate international comparison (ILO 2018). This includes classifying people's jobs using International Standard Classification of Occupations (ISCO) codes (ILO 2012).

ISCO is a statistical tool providing a system for classifying and aggregating occupational information into a clearly defined set of groups of occupations according to the main tasks and duties undertaken in the job. One of its aims is to provide a basis for international reporting, as well as comparison and exchange of statistical and administrative data about occupations. Thus it seeks to facilitate international communication about occupations and to be useful for research and decision-making.

ISCO codes have a nested hierarchical structure with four levels: major group, sub-major group, minor group, and unit group. The four levels are represented by numbers within a 4-digit code, with the first digit representing the major group, the second digit the sub-major group, the third digit the minor group and the fourth digit the unit group. For example, ISCO-08 major group 2 is “professionals”, within which sub-major group 22 is “health professionals”, within which minor group 221 is “medical doctors”, within which unit group 2212 is “specialist medical practitioners”. Thus, the 4-digit ISCO-08 code for specialist medical practitioners is 2212.

Occupations can be recorded as single-digit, 2-digit, 3-digit or 4-digit ISCO codes, depending on how much detail is collected about them. ILOSTAT requires countries to supply 2-digit codes, for

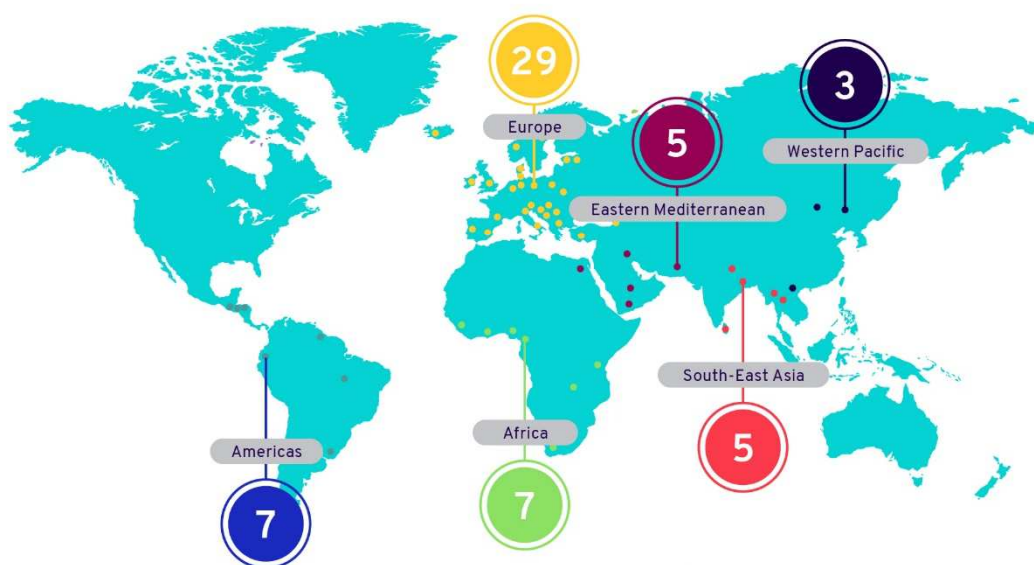
example code 22 (health professionals), code 32 (health associate professionals), and code 53 (personal care workers). This makes no distinction between different types of health worker such as physicians, nurses, dentists, midwives or pharmacists. Although not a requirement, a substantial number of countries supply 3- or 4-digit ISCO codes, which increases the scope for distinguishing between different occupations. The analysis in this report shows health and social care workforce data from the 56 countries that supplied these more detailed codes: 29 European countries and 27 countries from other regions of the world. Annex 1 contains a list of ISCO codes included within the definition of the health and social care workforce and a detailed explanation of the methods used in this report.

ILOSTAT includes data on a wide range of indicators, some of which are also included in other databases such as the NHTA data portal. This report focuses on indicators relating to the personal characteristics and working conditions of persons in employment, for which LFS are often the main or only data source. These indicators can be useful elements of a health labour market analysis (WHO 2021a). This report does not include data for other indicators such as workforce density, because LFS are not considered to be the most reliable source for these data. However, Annex 2 discusses the strengths and weaknesses of different data sources.

Because LFS are sample surveys, the analyses reported in Chapter 2 are subject to confidence intervals, which vary according to the sample size and the estimate being presented (see Annex 1 for details). Comparisons between countries should be interpreted with this uncertainty in mind. Additionally, it should be noted that the data featured in this analysis were reported before the COVID-19 pandemic, and therefore do not reflect the impacts of the pandemic on the health workforce. It will take some time for the exact scale and nature of the impacts to become clear, so it will be important to consider these issues again in the future.

► Box 2

Distribution of countries included in analysis





2

Workforce Characteristics and Working Conditions

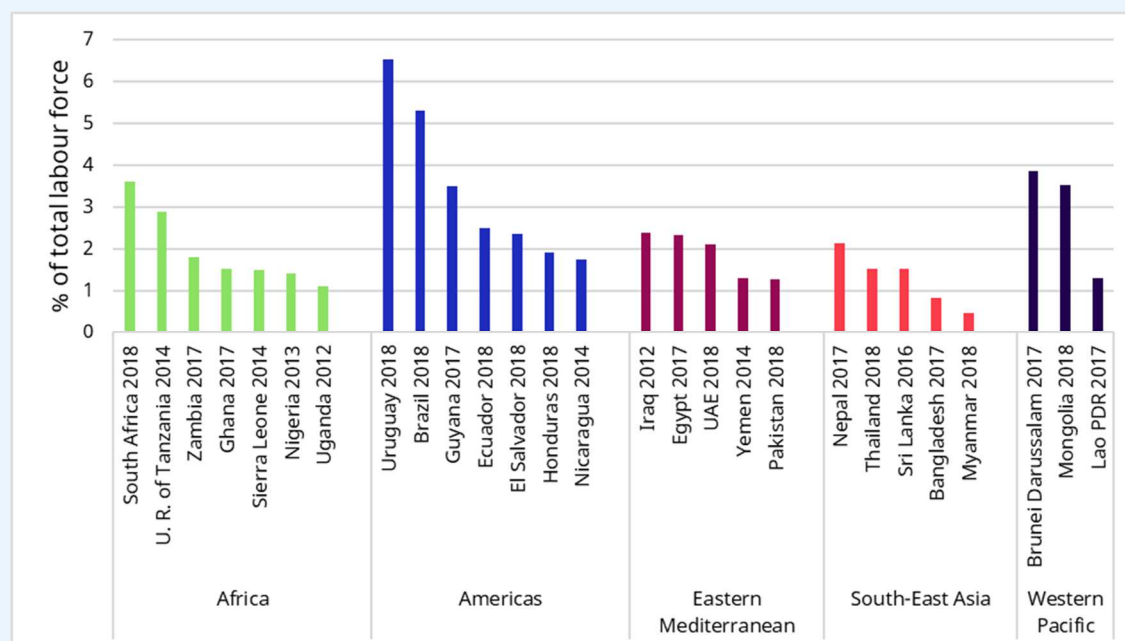
In this section, the findings of the analysis of LFS data are presented, disaggregated by country characteristics such as WHO region (WHO 2021b) and World Bank income group (World Bank 2021a).

► 2.1 The health and social care workforce within the wider labour force

In all participating countries outside Europe, the health and social care workforce accounted for less than 7 per cent of the total workforce. Figure 1a shows that this rate was below 2 per cent in: Bangladesh, Ghana, Honduras, Lao PDR, Myanmar,

Nicaragua, Nigeria, Pakistan, Sierra Leone, Sri Lanka, Thailand, Uganda, Yemen, and Zambia. The health and social care workforces in Brazil and Uruguay comprised a relatively high proportion of the total labour force, at 5.3 and 6.5 per cent respectively.

► **Figure 1a. Health and social care workforce as a percentage of national labour force: Countries outside Europe, by WHO region, most recent available year**

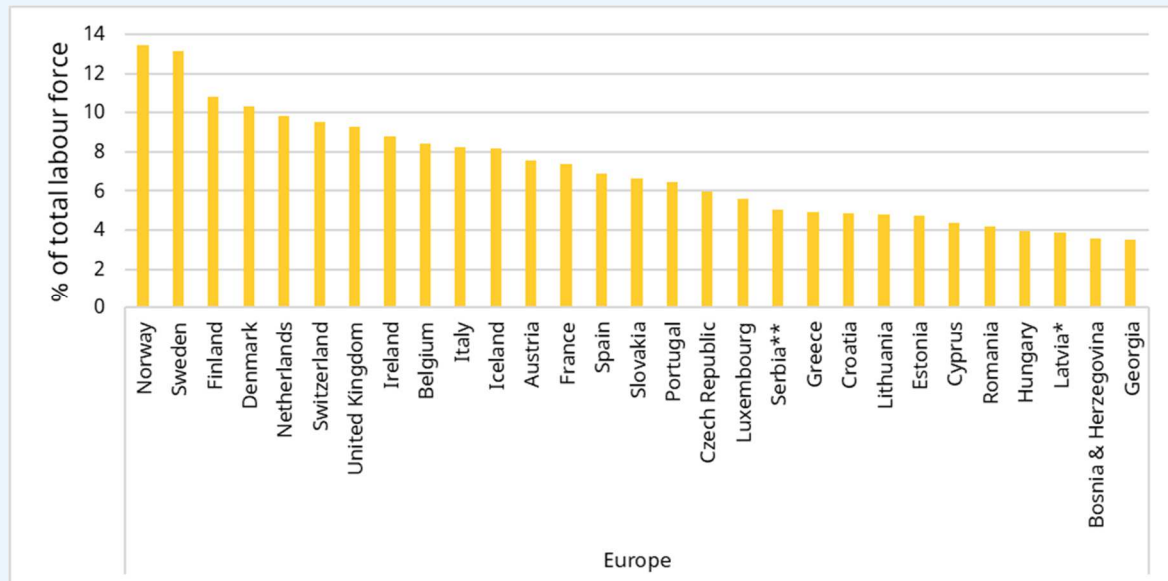


Note: Calculated by summing the sampled weights, to give the estimated size of the health and social care workforce in each country. These totals were divided by the total ILOSTAT labour force rates for each country. PDR = People's Democratic Republic; UAE = United Arab Emirates; U.R. = United Republic.

In European countries the health and social care workforce represented a higher percentage, averaging around 7 per cent (figure 1b). This percentage was highest for Norway and Sweden at

approximately 13 per cent, with Denmark and Finland reporting rates of over 10 per cent. At the other extreme, the rate was about 4 per cent for Bosnia and Herzegovina, Georgia, Hungary, and Latvia.

► **Figure 1b. Health and social care workforce as a percentage of national labour force: Countries in WHO Europe region, 2017**

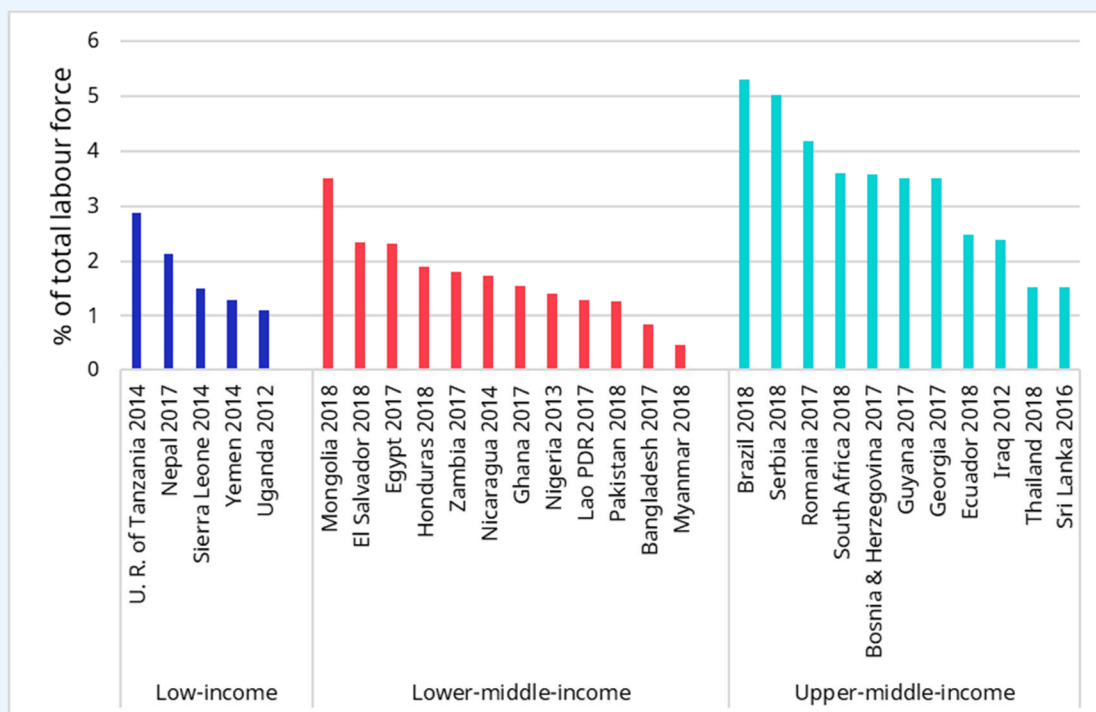


Notes: * Data from 2016. ** Data from 2018.

Figures 2a and 2b illustrate that the health and social care workforce tended to account for a relatively high proportion of the total labour force in high-income countries, especially in comparison to low-income and lower-middle-income countries. The main exceptions to this pattern were Brazil and Serbia: upper-middle-income countries in which it represented a relatively large percentage of the total

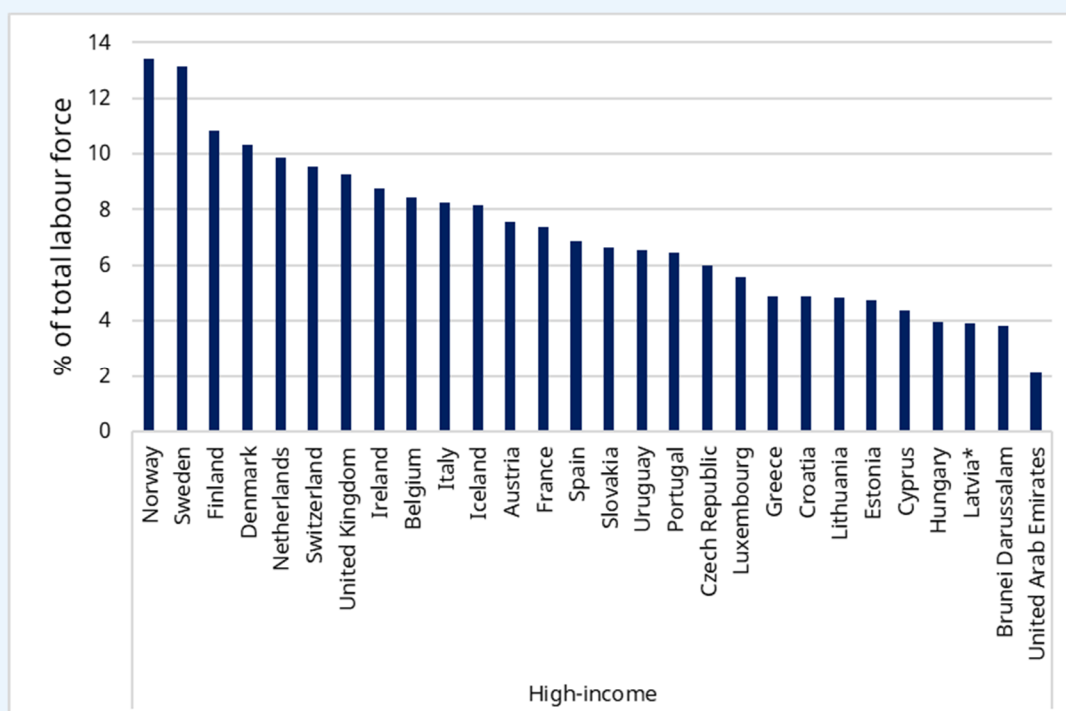
labour force, and United Arab Emirates (UAE): a high-income country in which the health and social care workforce represented a small percentage of the total. The results from UAE may be due to the LFS in this country sampling only from “national” households. UAE is a major destination country for migrant health workers (WHO 2017c), many of whom were probably excluded from the sample.

► **Figure 2a. Health and social care workforce as a percentage of national labour force: Low- and middle-income countries, by income group, most recent available year**



Note: Income group classifications relate to the year 2019. PDR = People's Democratic Republic. U.R. = United Republic.

► **Figure 2b. Health and social care workforce as a percentage of national labour force: High-income countries, 2017**



Note: Income group classifications relate to the year 2019. * Data from 2016.

For several countries, data for multiple time periods were available. In general, the percentage of the labour force made up of health and social care workers remained relatively stable. Figure 3a shows that, in a few countries outside Europe, there was a

small increase in the percentage of the total labour force accounted for by health and social care workers: Brazil, Honduras, South Africa, and Uruguay.

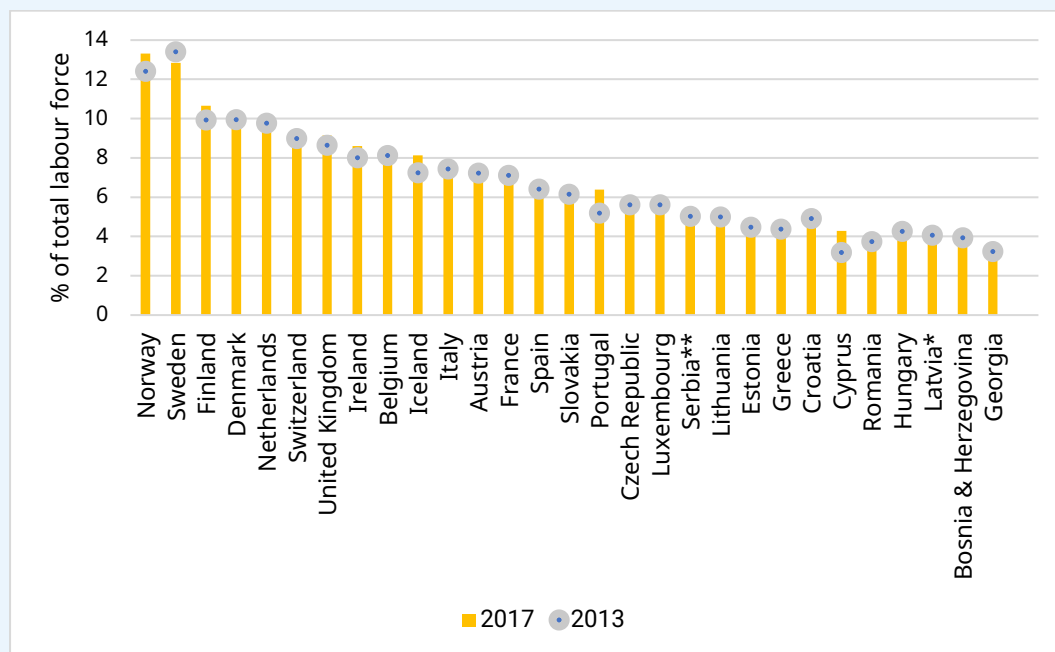
► **Figure 3a. Change over time in health and social care workforce as a percentage of national labour force: Countries outside Europe, by WHO region, 2014-2018**



In Europe, health and social care workers comprised a fairly consistent percentage of the total labour force between 2013 and 2017 (figure 3b). Most countries

showed small increases, with slightly larger increases for Cyprus, Finland, Iceland, Norway, and Portugal.

► **Figure 3b. Change over time in health and social care workforce as a percentage of national labour force: Countries in WHO Europe region, 2013–17**



Notes: * Time period 2013–16. ** Time period 2013–18.

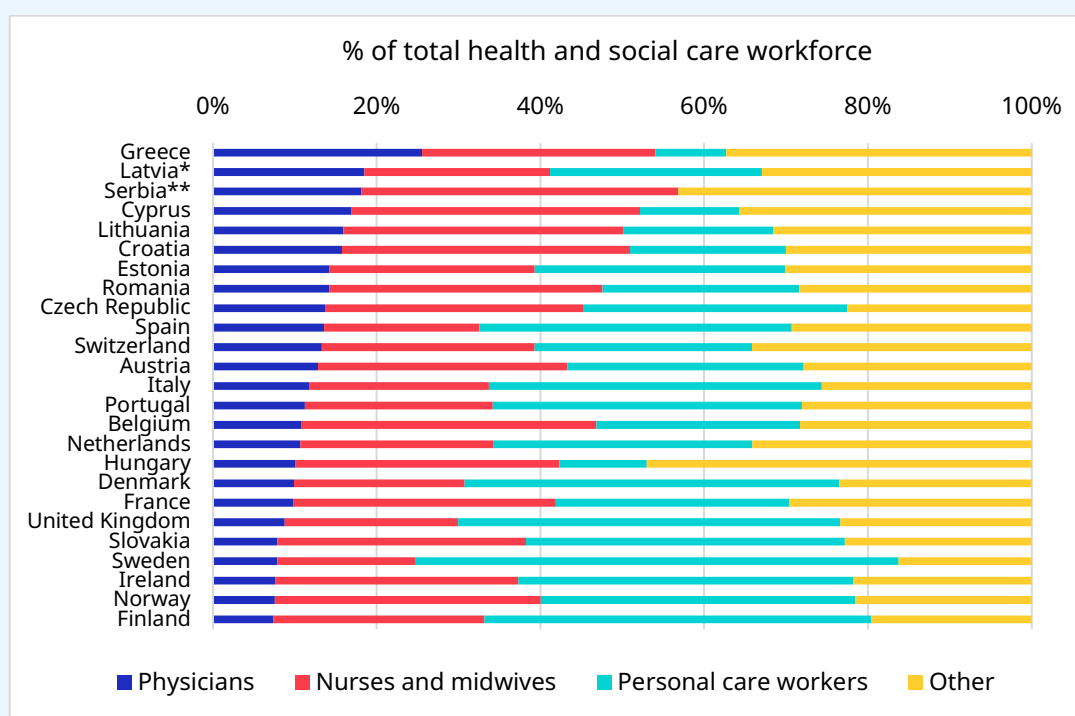
► 2.2 Profession mix within the health and social care workforce

The WHO *Global Strategy* does not specify an ideal mix of occupations within the health and social care workforce. This is due to the heterogeneity of countries in terms of baseline conditions and population need. For example, previous estimates of the ideal mix of professionals working in the field of sexual, reproductive, maternal, newborn and adolescent health concluded that the ideal mix of professions depends on factors including fertility rate and disease burden (UN Population Fund, ICM, and WHO 2021; Ten Hoop-Bender et al. 2017). Other influencing factors will include the age profile of the population (Liu et al. 2017). It has been acknowledged at a global level that UHC will be achieved only if health systems are designed around people, rather

than around diseases and institutions (UN 2019). In practice, this means prioritizing primary health care, and by extension prioritizing investments in health and social care workers who work at this level of the health system.

In European countries, physicians typically made up between 10 and 20 per cent of the health and social care workforce, and nurses and midwives approximately 20 to 30 per cent³ (figure 4a). In many countries (especially Denmark, Finland, Ireland, Italy, Sweden and the United Kingdom), personal care workers were a relatively large group within the health and social care workforce.

► **Figure 4a. Profession mix within the health and social care workforce: Countries in WHO Europe region, 2017**



Notes: * Data from 2016. ** Data from 2018.

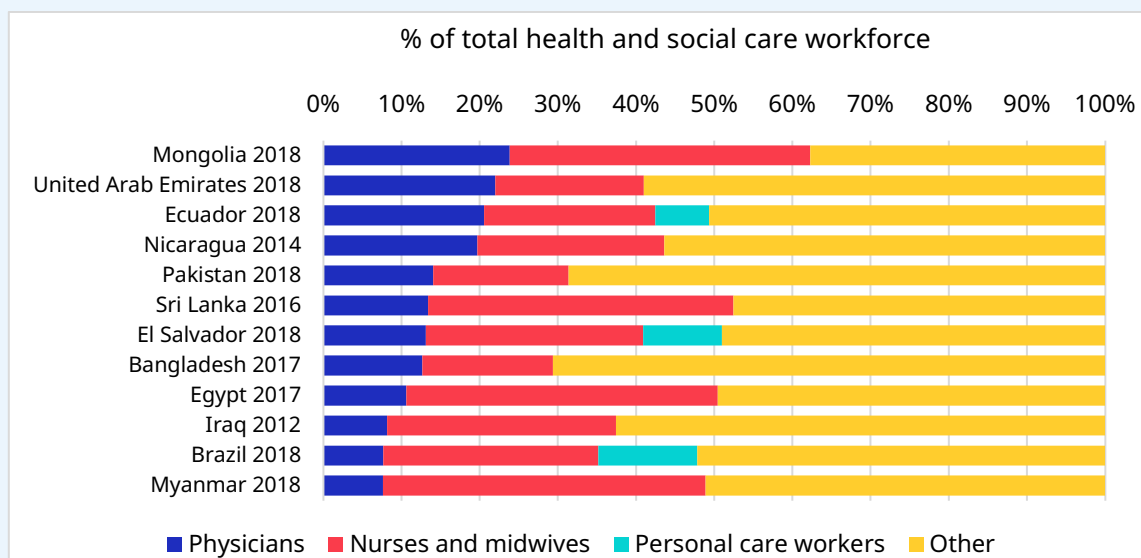
³ The *State of the World's Nursing 2020* report (WHO 2020) estimated that in Europe nurses comprised 57 per cent of the "health professional" workforce, i.e. physicians, nurses, midwives, dentists and pharmacists. The estimate here is

much lower because it uses a different denominator: the total health and social care workforce, i.e. including all health professionals, associate professionals and personal care workers (see Annex 1 for a full list).

For countries outside Europe, there was less consistency in terms of data availability. Physicians and nursing and midwifery personnel were identifiable in many countries, and personal care workers in some, but reporting of other health and social care occupations was very patchy. Lack of data on an occupation may be an indication that this is undervalued or overlooked, such as unpaid care work, with implications for decent work, gender equity, and UHC (ILO 2017a).

Based on the 12 countries outside Europe with sufficient data for physicians, nurses/midwives and at least one other occupation group, figure 4b shows that physicians typically accounted for 10 to 20 per cent of the total health and social care workforce (similar to European countries). The percentage of the workforce who are nurses and midwives ranged from 17 per cent in Bangladesh and Pakistan to 41 per cent in Myanmar.

► **Figure 4b. Profession mix within the health and social care workforce: Countries outside WHO Europe region, most recent available year**



► 2.3 Industry sectors employing health and social care workers

As part of LFS coding, the industry in which a respondent works is recorded. This allows the industry sector to be coded, using International Standard Industrial Classification (ISIC) codes (UN 2007). This analysis shows that some health and social care workers work outside of the health and social care sector. It could be argued that it is important for health and social care workers to work within public administration so that their perspective has an influence on decisions affecting the health workforce: the WHO *Global Strategy* notes that health workforce development is partly a technical process, but also a political process (WHO 2016a). Similarly, it is important for some health and social care workers to work within the education sector so that those with

experience can teach the next generation and lead research.

In European countries, the percentage of health and social care workers who were working in the health and social care sector ranged from 91 per cent in Norway to 64 per cent in Italy (figure 5a). Significant percentages worked in public administration, retail (mainly pharmacists) and other industry sectors. Private households employed relatively large numbers of health and social workers (mainly personal care workers) in Czech Republic and Italy.

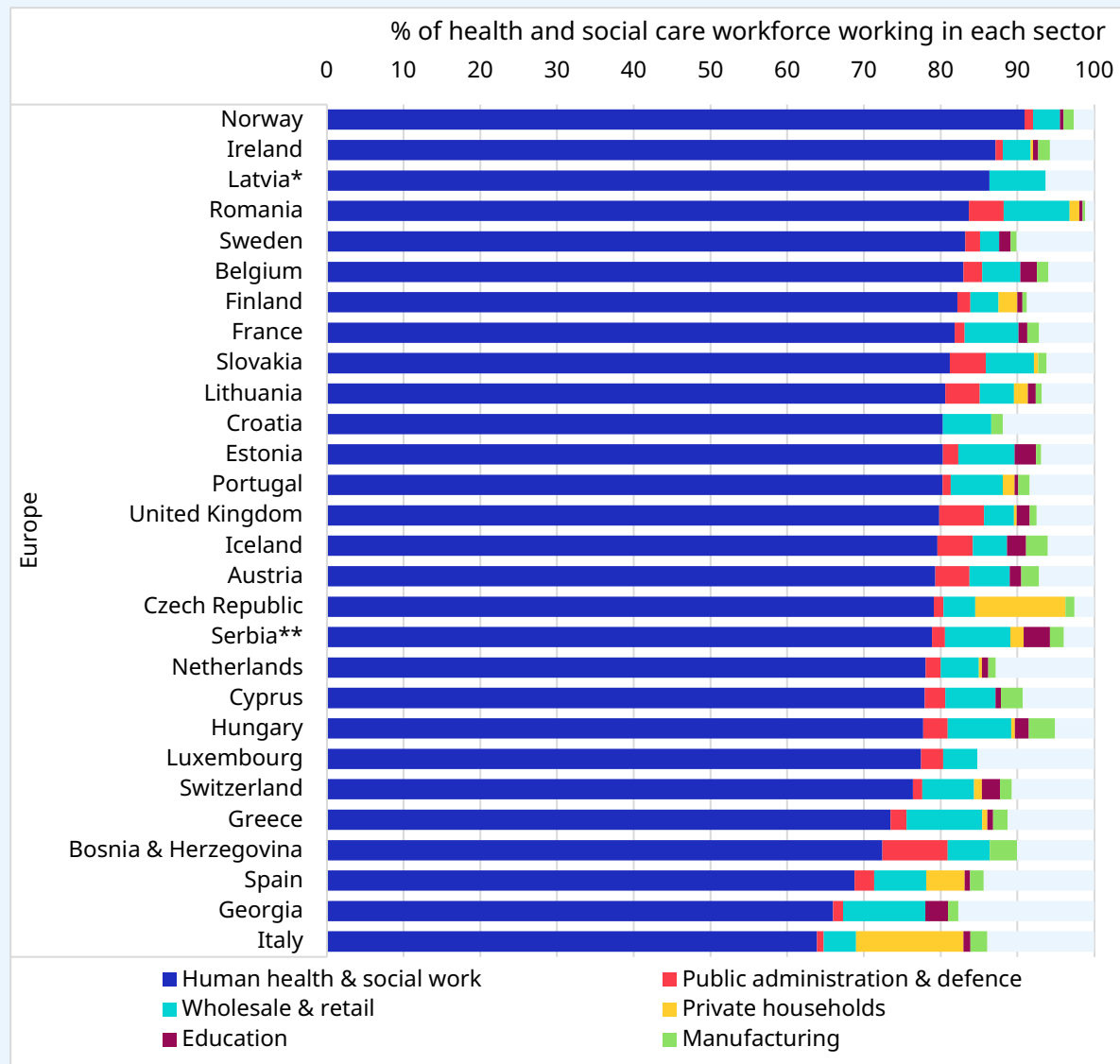
► Box 3

Industry sectors employing health and social care workers

Majority of health and social care workers work in Human Health and Social Care



► **Figure 5a. Industry sectors in which health and social care workers worked: Countries in WHO Europe region, 2017**



Notes: * Data from 2016. ** Data from 2018.

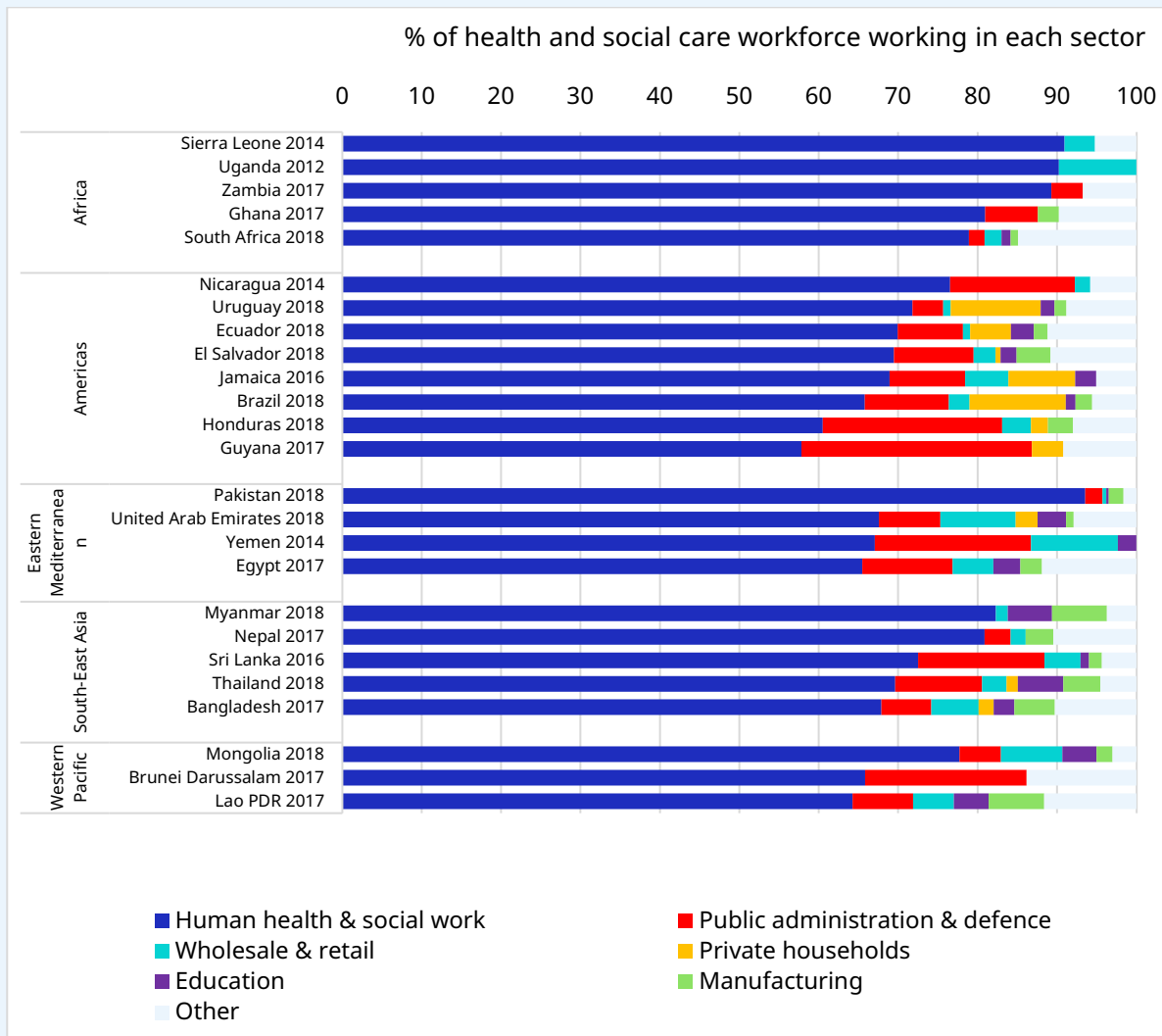
In most European countries, over 90 per cent of physicians, nurses and midwives worked within the health and social care sector, and most of those working in other sectors were personal care workers or other types of health worker. However, in a few countries fewer than 90 per cent of physicians and/or nurses and midwives worked in the health and social care sector: Georgia (69 per cent of nurses), Netherlands (85 per cent of physicians), Switzerland (85 per cent of physicians), and United Kingdom (83 per cent of physicians).

Similarly, there was variation between countries within regions outside of Europe (figure 5b). There was slightly less variation in Africa, where the percentage working within the health and social care sector ranged from 91 per cent in Sierra Leone to 79 per cent in South Africa. In several countries in the

Americas region, relatively large percentages were employed by private households. The public administration sector accounted for a relatively large percentage of health and social care workers in most of the responding countries in the Americas, Eastern Mediterranean, South-East Asia and Western Pacific regions.

Again, physicians, nurses and midwives were more likely than other types of health and social care worker to work in the health and social care sector. However, countries outside Europe were more likely than European countries to report nurses and midwives working in other sectors, most notably: Bangladesh (26 per cent worked in non-health sectors), Egypt (31 per cent), Guyana (32 per cent), Nicaragua (27 per cent), and Sri Lanka (24 per cent).

► **Figure 5b. Industry sectors in which health and social care workers worked: Countries outside Europe, by WHO region, most recent available year**



Note: PDR = People's Democratic Republic.

► 2.4 Health and social care workforce demography

Demography is the study of the profile and habits of populations, such as their age, gender, and geographical location. Understanding of the demography of the health and social care workforce is important for workforce planning and management (Szabo et al. 2020). Demographic imbalances in the workforce can bring about

challenges, but what constitutes an appropriate balance may vary between contexts and disciplines. For example, within the maternal and newborn health workforce a bias towards women could be appropriate, especially in contexts where interaction between men and women is restricted (UN Population Fund, ICM, and WHO 2021).

2.4.1 Gender

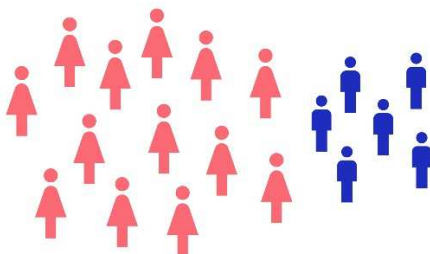
A recent review of evidence on gender equity in the health workforce found that women tend to face more significant barriers to labour force participation and career progression than men, despite the fact that most health workers are women. These barriers exist at the individual, interpersonal, institutional and community levels, and include: women being discouraged or banned from entering male-dominated occupations, women being denied opportunities because of pregnancy or motherhood, unequal gender norms and power dynamics within the workplace, gender-based violence and harassment. Because there is such a heavy dependence on women to provide health and social care, gender-transformative policy and action is required to address the global shortage of health and social care workers and gender-related workplace challenges (WHO 2019b).

In most regions of the world the majority of health and social care workers are women (figures 6a and 6b). This is particularly noticeable in the Americas, Europe and the Western Pacific. Four countries (Bangladesh, Iraq, Pakistan and Yemen) have more men than women in the health and social care workforce. In Pakistan's case, this is due to the workforce containing a relatively large number of (mostly male) physicians; most nurses/midwives in Pakistan are women. Nepal, Sierra Leone, and United Arab Emirates have a fairly even gender balance overall, but this masks a high degree of occupational segregation, with most physicians being men and most nurses, midwives and personal care workers being women.

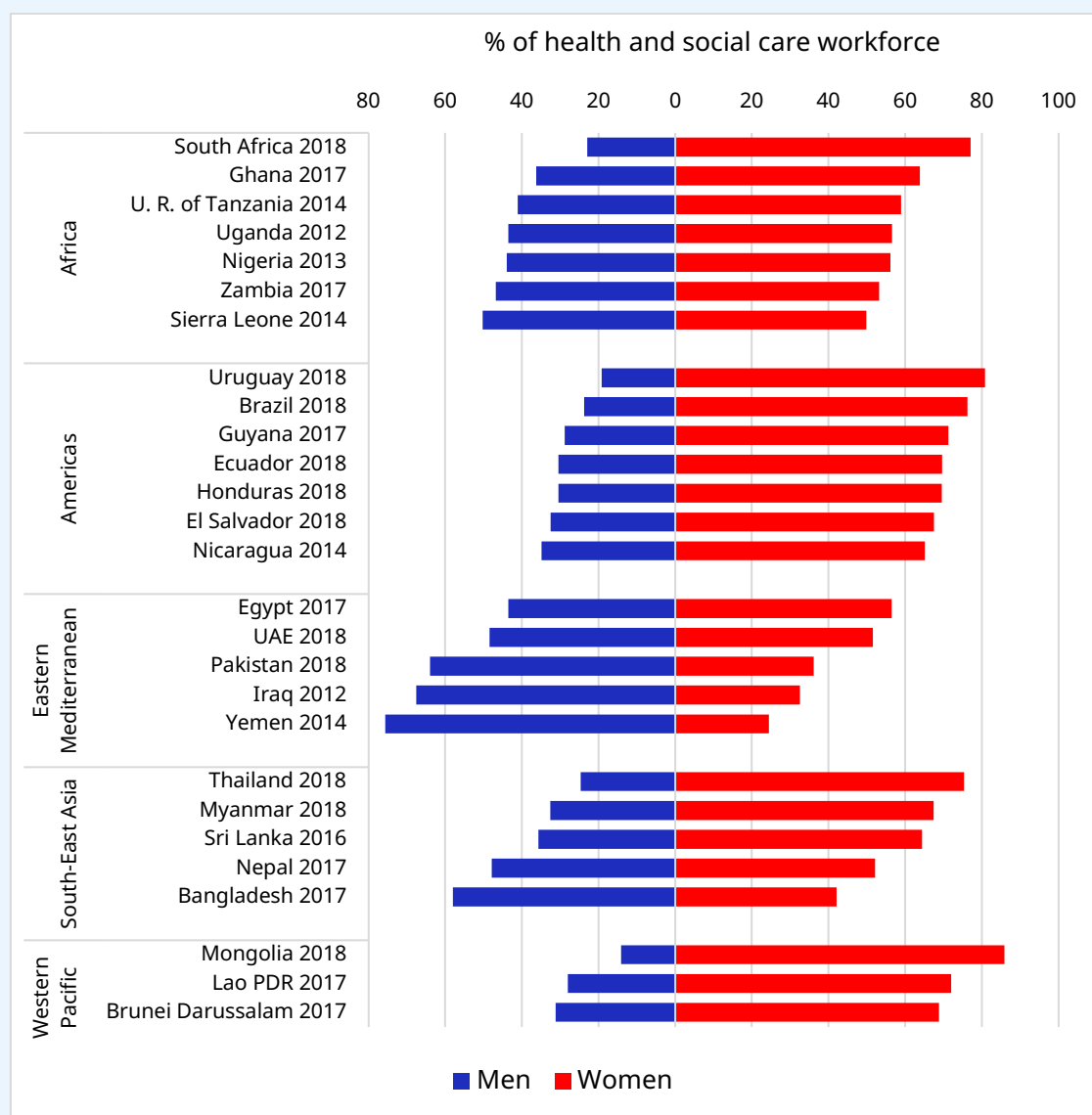
In most countries outside Europe with a health and social care workforce consisting mostly of women, this is largely driven by nurses, midwives and personal care workers. In several of these countries, the majority of physicians are men, as in Bangladesh, Brazil, Egypt, Pakistan and United Arab Emirates. In most European countries, however, women dominate all health and social care occupation groups, including physicians. The exceptions are Austria, Cyprus, France, Italy, Norway, and the United Kingdom (which have an approximately equal gender balance within the physician workforce), and Greece and Ireland (where most physicians are men).

► Box 4

There are more women than men
in the health and social care workforce

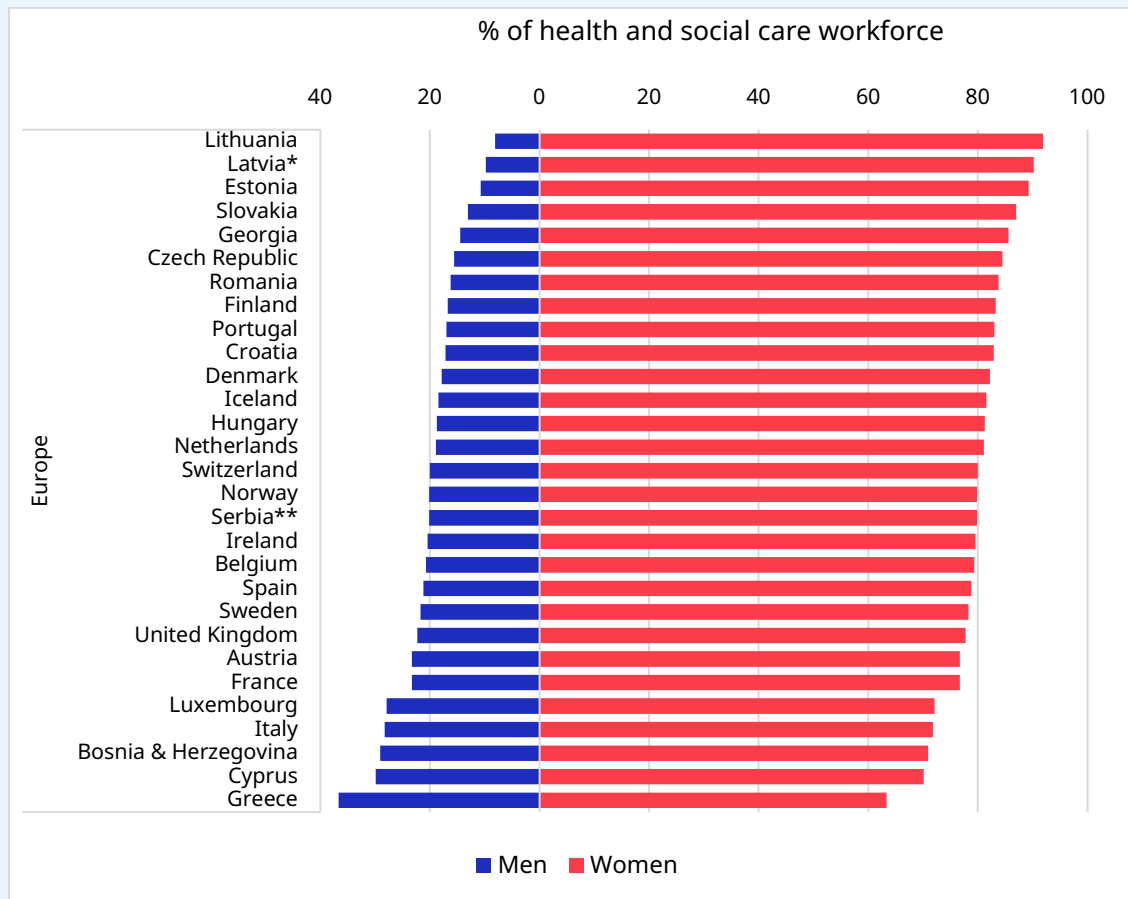


► **Figure 6a. Gender distribution in the health and social care workforce: Countries outside Europe, by WHO region, most recent available year**



Notes: PDR = People's Democratic Republic; UAE = United Arab Emirates; U. R. = United Republic.

► **Figure 6b. Gender distribution in the health and social care workforce: Countries in WHO Europe region, 2017**

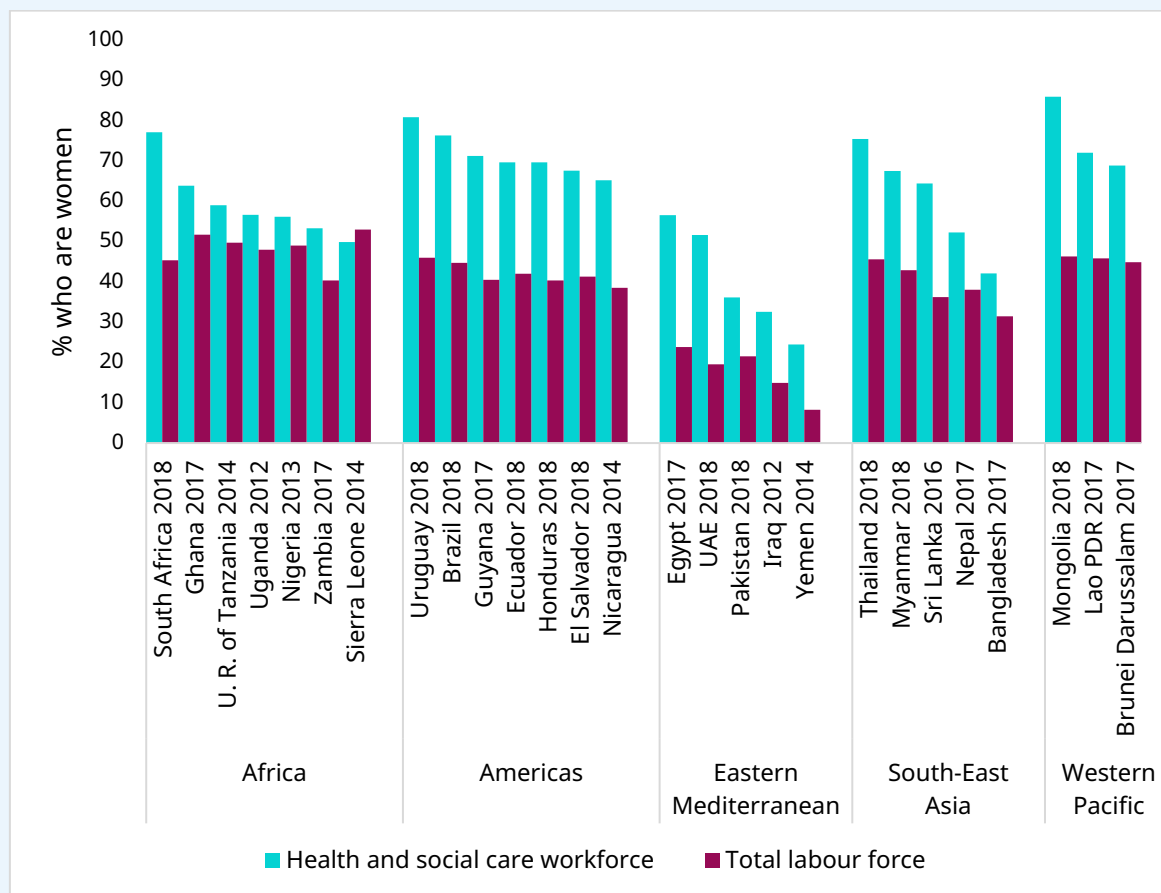


Notes: * Data from 2016. ** Data from 2018.

The relatively low proportions of women in the health and social care workforce in Iraq, Pakistan and Yemen were reflective of relatively low labour force participation rates for women generally in these countries. However, figures 7a and 7b show that, in

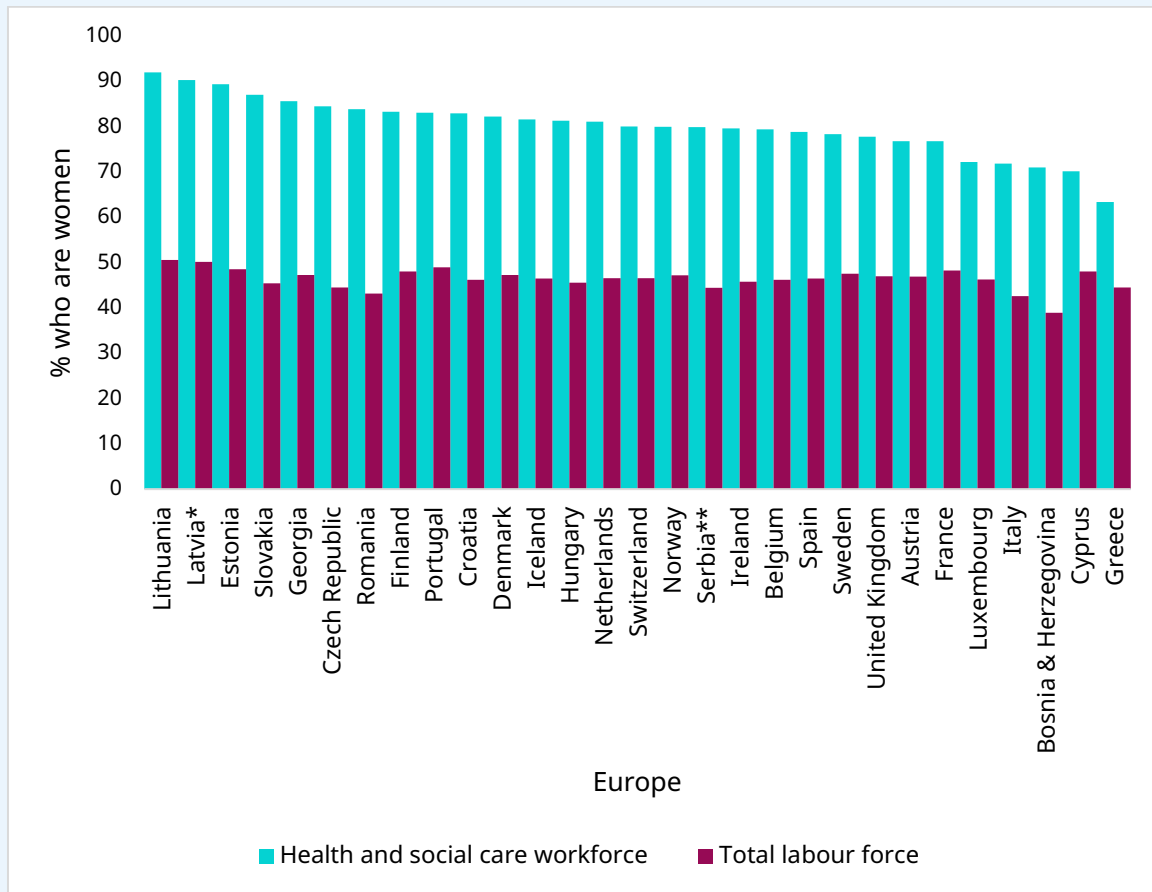
all reporting countries except Sierra Leone, the share of women in the health and social care workforce was higher than the share of women in the labour force overall.

► **Figure 7a. Share of women in the health and social care workforce compared with total labour force: Countries outside Europe, by WHO region, most recent available year**



Notes: PDR = People's Democratic Republic; UAE = United Arab Emirates; U.R. = United Republic.
Source for labour force data: ILO 2020.

► **Figure 7b. Share of women in the health and social care workforce compared with total labour force: Countries in WHO Europe region, 2017**



Notes: * Data from 2016. ** Data from 2018.

Source for labour force data: ILO 2020.

2.4.2 Age

The age profile of a workforce can be an indicator of future availability. If the workforce's oldest age cohort is larger than its youngest cohort, once the older cohort reaches retirement there may be insufficient younger health workers to maintain the overall size of the workforce (UN Population Fund, ICM, and WHO 2021; WHO 2020). If population need for health and social care workers is growing, therefore, a large cohort of older workers is an indication of a shortage in the short to medium term, especially for occupations requiring lengthy pre-service education. On the other hand, a very small number in the older age cohort may be an indication of poor workforce retention strategies, such as lack of opportunity to combine professional and family responsibilities.

In several countries outside Europe, the health and social care workforce was relatively young: in Egypt,

Ghana, Guyana, Lao PDR, Myanmar, Nepal, Uganda and Zambia more than half of health and social care workers were aged under 35 (figure 8a).

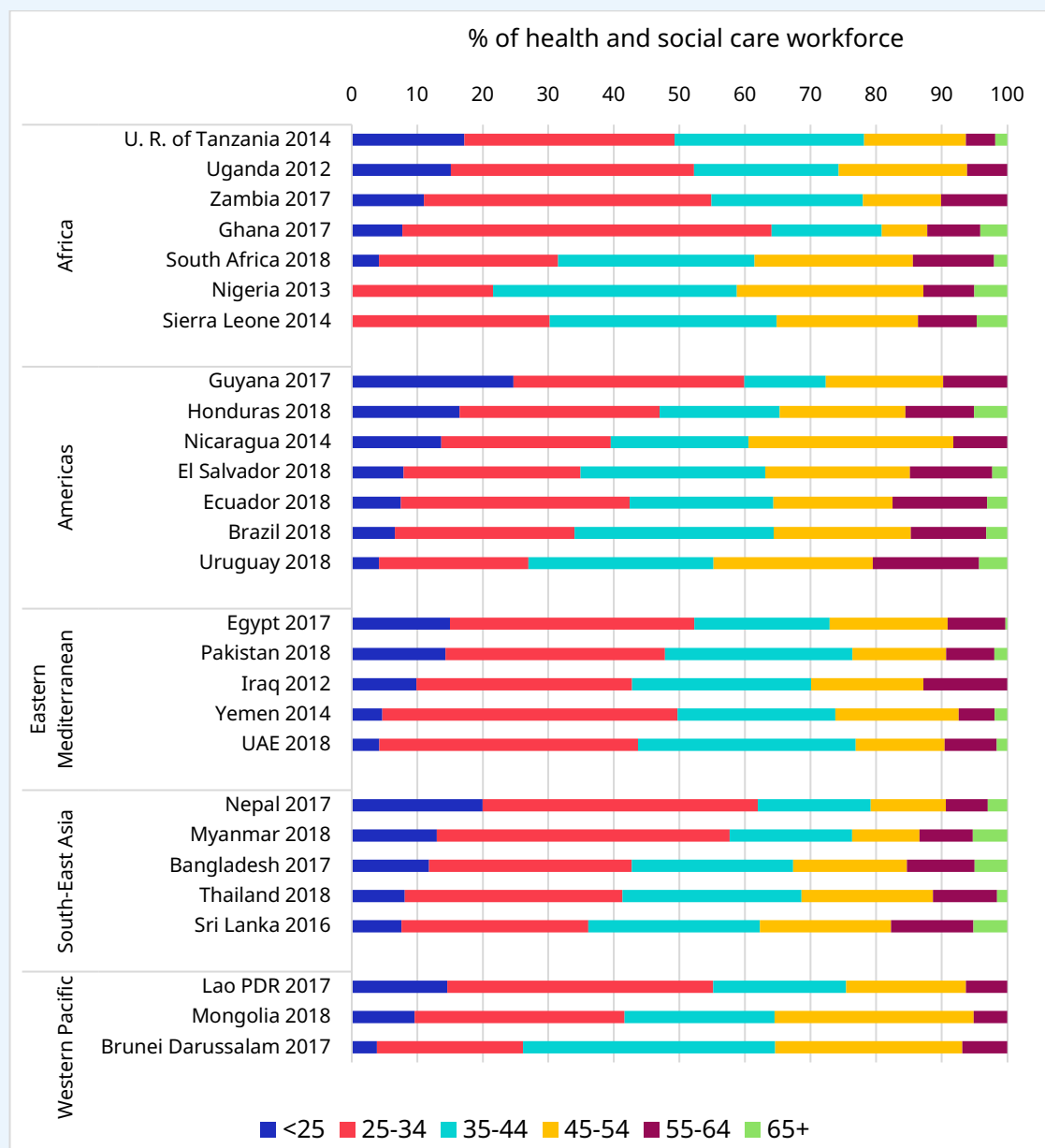
By contrast, an older workforce was observed in several European countries (figure 8b), including three where more than 30 per cent of health and social care workers were aged 55 or over: Estonia, Latvia, and Lithuania. In these three countries, an older profile was evident for physicians, nurses and midwives, and personal care workers. In several other European countries the physician workforce was relatively old: Austria, Belgium, Cyprus, Finland, France, Greece, Hungary, Italy, Portugal, Serbia, and Spain. A few also reported a large number of older personal care workers: Croatia, Cyprus, Czech Republic, Italy, Romania, Serbia and Slovakia.

► Box 5

Age distribution is important for workforce planning

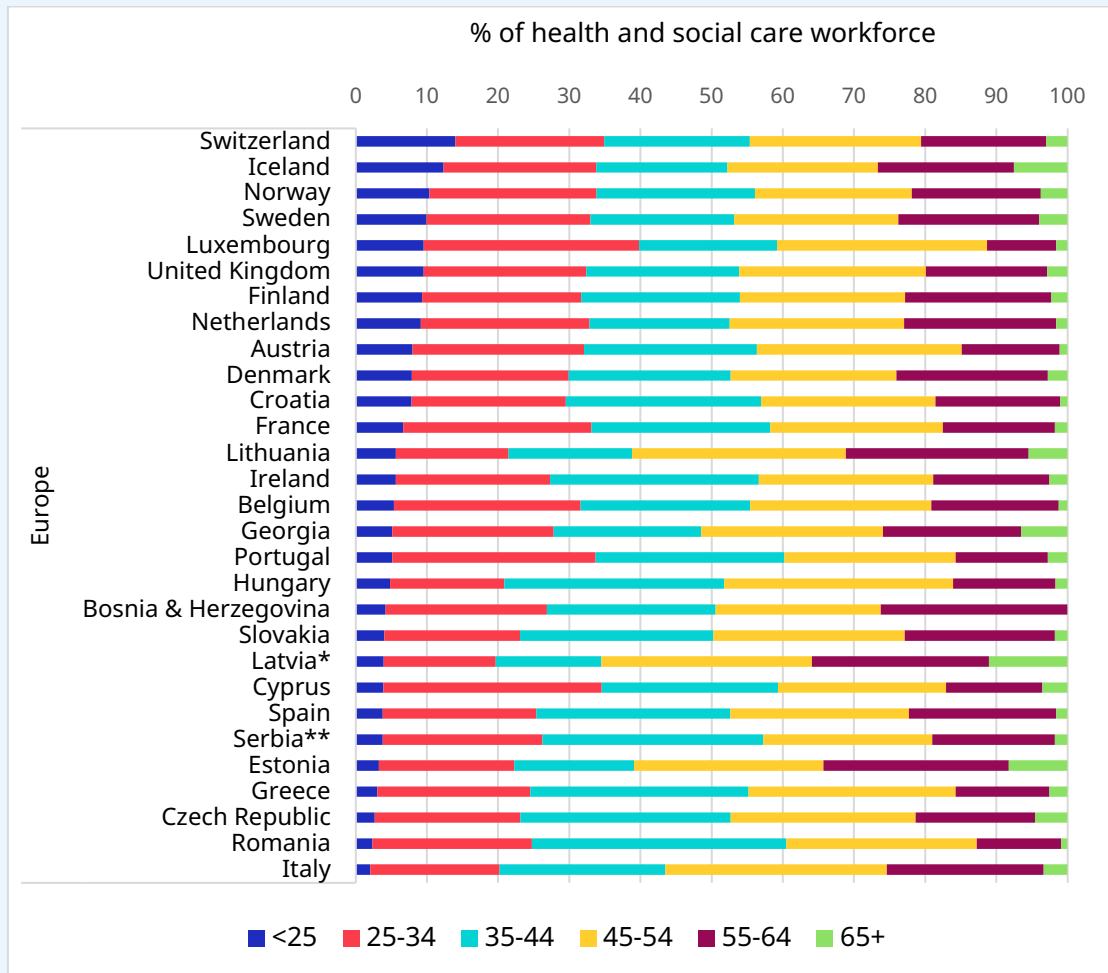


► **Figure 8a. Age distribution of health and social care workforce: Countries outside Europe, by WHO region, most recent available year**



Notes: PDR = People's Democratic Republic; UAE = United Arab Emirates; U.R. = United Republic.

► **Figure 8b. Age distribution of health and social care workforce: Countries in WHO Europe region, 2017**



Notes: * Data from 2016. ** Data from 2018

2.4.3 Distribution of the workforce across urban and rural locations

Almost half of the world's population lives in rural areas (UN 2018), but in most countries a large majority of health and social care workers live in urban areas.⁴ This leaves many rural communities underserved and presents a major challenge to the achievement of UHC. To improve recruitment and retention in rural areas, WHO recommends action on: education and training (such as targeted admission of students from rural areas, practical placements in rural health facilities), regulation (such as enhanced scopes of practice in rural areas), financial incentives (such as help with transport and housing costs), and personal and professional support (such as rural career development programmes, professional networks, public recognition of the contribution of rural health workers) (WHO 2010).

Because the LFS is a household survey, the urban/rural classification relates to the respondents' home: data are not collected on the location of their workplace. It is likely that most urban residents work

in an urban location, but it is possible that some rural residents commute to an urban area for work and therefore that the percentage of rural health and social care workers is an overestimate. Furthermore, even within urban areas, there can be pockets of poor accessibility to health and social care workers, which are not visible within a simple "urban/rural" analysis. The analysis below should be interpreted with these limitations in mind.

Globally, most health workers reside in urban areas, so we assume that in most cases their place of employment is also in an urban area. There are, however, some exceptions. Rural residents represent 50 per cent or more of health workers in: Bangladesh, Guyana, Nigeria, Sierra Leone Sri Lanka, Uganda and Yemen (figure 9a). The distribution is more evenly spread in some countries in the European region, which reported that between 20 and 40 per cent of workers live in rural areas (figure 9b).

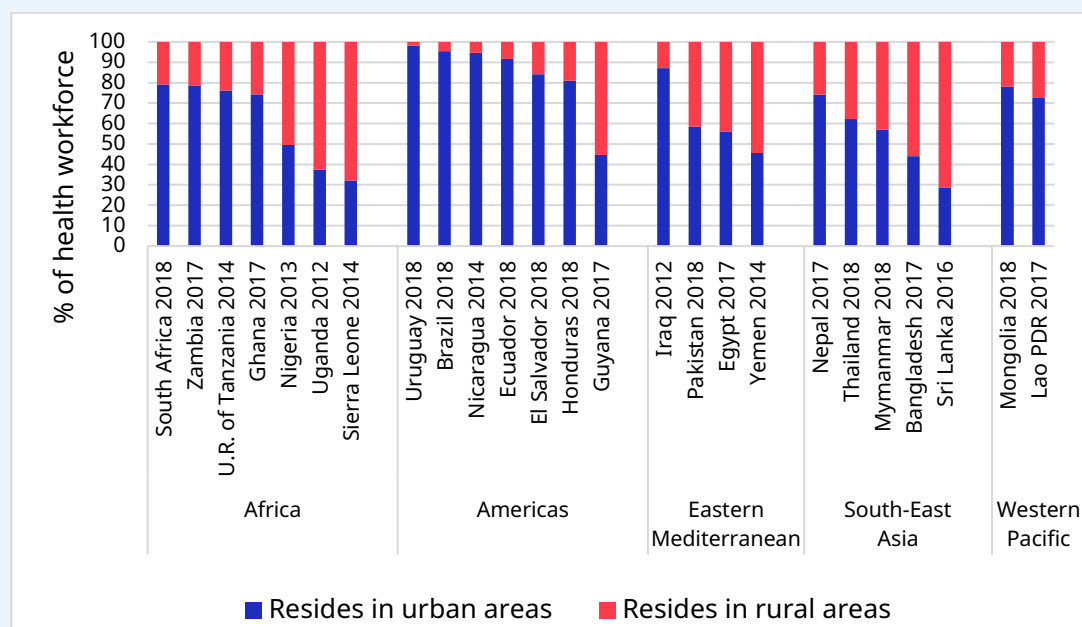
► Box 6

Distribution of workforce across urban and rural locations



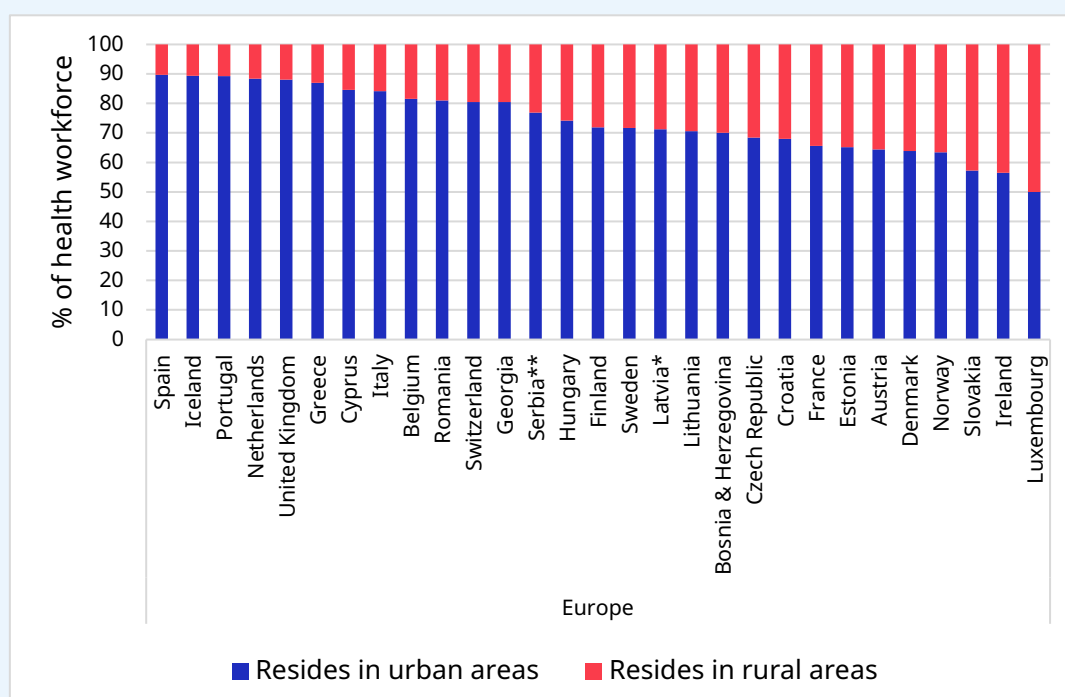
⁴ The definition of rural and urban areas varies between countries; please refer to the glossary.

► **Figure 9a. Share of the health and social care workforce residing in urban and rural areas: Countries outside Europe, by WHO region, most recent available year**



Notes: PDR = People's Democratic Republic; U.R. = United Republic.

► **Figure 9b. Share of the health and social care workforce residing in urban and rural areas: Countries in WHO Europe region, 2017**



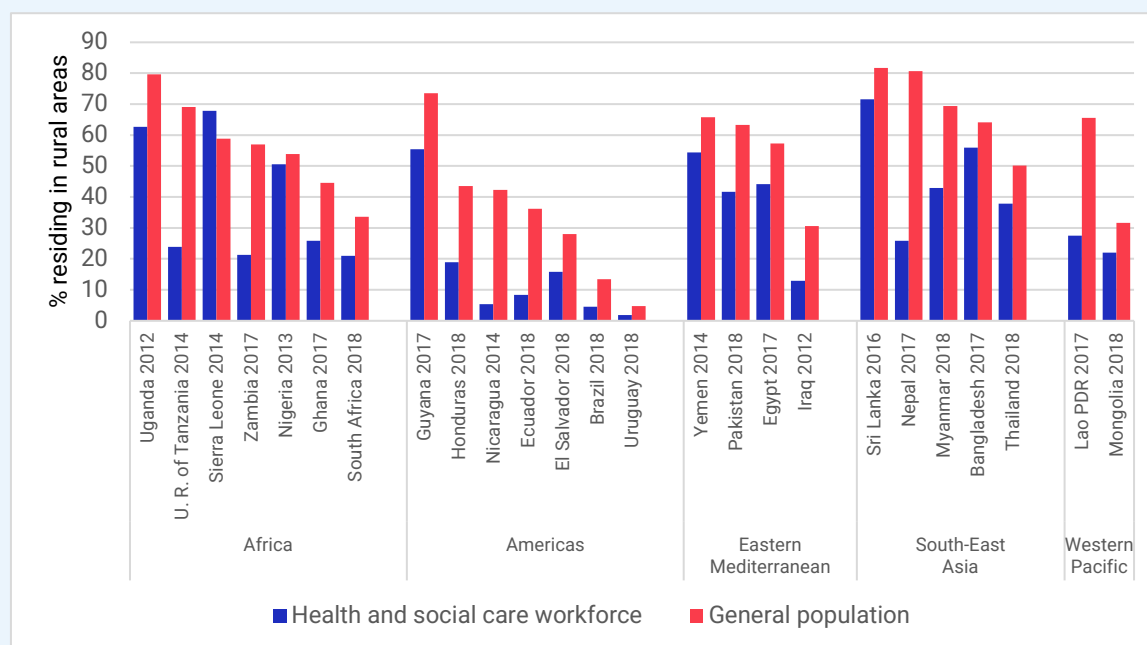
Notes: * Data from 2016. ** Data from 2018.

It is interesting to compare this pattern with the UN published urbanization profiles for countries. In most of the responding countries in Africa, Eastern Mediterranean, and South-East Asia, over half of the population resided in a rural area. Conversely, in the Americas and Europe rural populations tended to be smaller than urban populations. In nearly every country outside Europe (with the exception of Sierre Leone) rural residents accounted for a larger percentage of the general population than of the health and social care workforce, indicating inequity of access to the workforce (figure 10a). The gap was especially large in Lao People's Democratic Republic, Nepal, Nicaragua, United Republic of Tanzania, and Zambia – nearly all low- and lower-middle-income countries.

In general, smaller gaps were evident in European countries (figure 10b), but in some countries the gap was relatively large, namely in Bosnia and Herzegovina, Georgia, Portugal, Romania and Serbia. In nearly every country (with the exception of Egypt, Estonia and the United Kingdom), physicians were

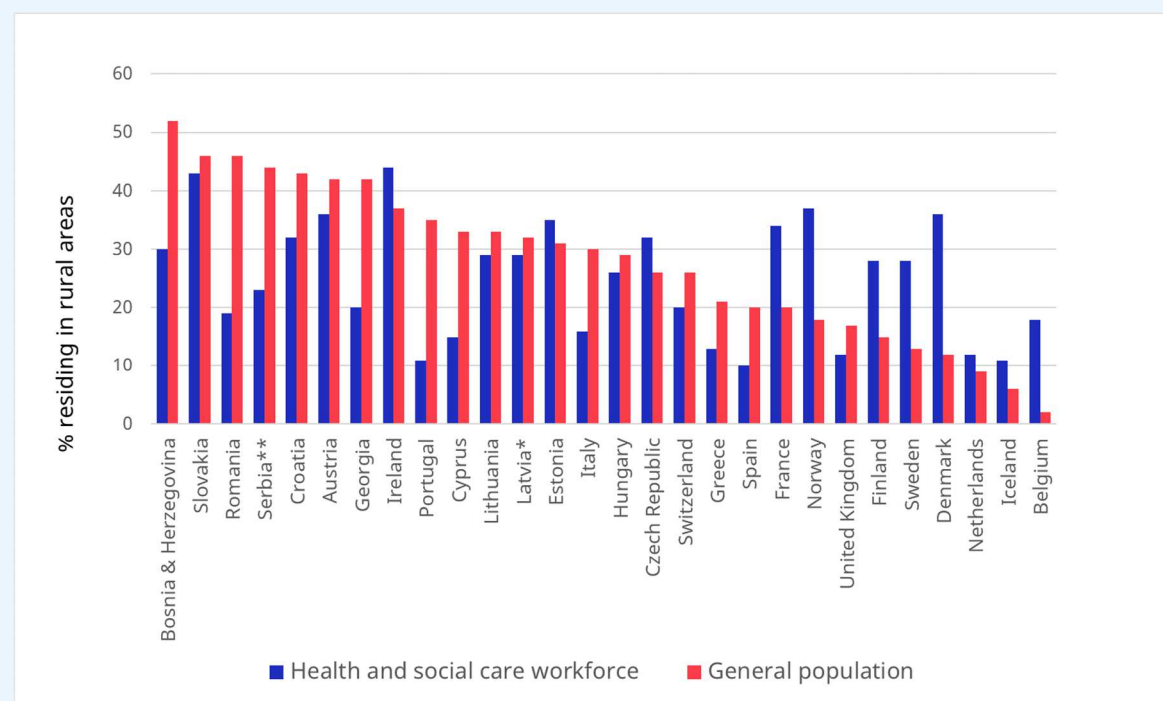
under-represented in rural areas to a greater extent than nurses, midwives and personal care workers. In several European countries, the share of rural health and social care workers was considerably *larger* than the share of the rural population: Belgium, Denmark, Finland, France, Norway and Sweden. In Belgium, Denmark and Norway this applied to all occupation groups, but especially to nurses, midwives and personal care workers. In Finland, France and Sweden it was due to large proportions of nurses, midwives and personal care workers in rural areas. More research would be needed to understand the reasons for this pattern, but it is possible that it is due to a greater level of commuting from rural residences to urban workplaces in some countries, for instance due to higher living costs in cities (Royal College of Nursing 2020). It may also indicate a strategic decision to have a higher health worker density in areas with sparse populations, for example by shifting responsibilities and roles in primary healthcare to better serve rural and remote areas, as observed in several OECD countries (OECD 2021c).

► **Figure 10a. Share of the health and social care workforce and the general population residing in rural areas: Countries outside Europe, by WHO region, most recent available year**



Notes: PDR = People's Democratic Republic; U. R. = United Republic.
Source for population data: UN 2018.

► **Figure 10b. Share of the health and social care workforce and the general population residing in rural areas: Countries in WHO Europe region, 2017**



Notes: * Workforce data from 2016. ** Workforce data from 2018.
Source for population data: UN 2018.

2.4.4 Education levels of health and social care workers

SDG 4 aims to ensure “inclusive and equitable quality education and promote lifelong learning opportunities for all”. Good quality education and training which equips health workers to provide high-quality care is also closely linked to the achievement of SDG 3 (health and well-being). There is increasing recognition that current education models can be inadequate in preparing health workers, and there have been calls for an integrative systems framework for health worker education, connecting to health labour markets and to population health needs (UN Population Fund, ICM, and WHO 2021; Frenk et al. 2010). A good skills development system should anticipate skills needs; engage employers and workers in decisions about how education is organized and delivered; maintain the quality and relevance of training; make education and training accessible to all sectors of society; ensure viable and equitable financing mechanisms; and continuously evaluate economic and social outcomes (ILO 2017a). According to the ILO Nursing Personnel Convention, 1977 (No. 149) nursing personnel should be provided with the “education and training appropriate to the exercise of their functions”; the basic requirements and the supervision of education and training should be regulated by national law or competent authorities; and should be coordinated with the education and training of other health occupations.

Scaling up and strengthening the quality of health workforce education and training is a priority in the multi-agency SDG 3 global action plan (WHO 2019c). Competency-based global standards exist for the education of midwives and nurses (ICM 2010 rev.2021; WHO 2009), and these require regular review and updating to ensure that they continue to be appropriate to population need. There have been calls to harmonize curricula across countries (WHO 2020). WHO has developed a Global Competency Framework for UHC, which identifies the required competencies for primary healthcare workers and guides the alignment of education and training with population needs, health systems and the health labour market (WHO 2022).

The level of education attained by health and social care workers as reported in LFS were defined using the International Standard Classification of Education (ISCED). For this report, ISCED 11 and ISCED 97 versions were combined to produce four categories: “less than basic”, “basic”, “intermediate” and “advanced” (table 1). This analysis makes no attempt to classify the quality of the education received, nor whether it was competency-based.

► Box 7

Education levels



Good Quality
Education & Training

is an
important
factor of



High Quality
Health & Social Care



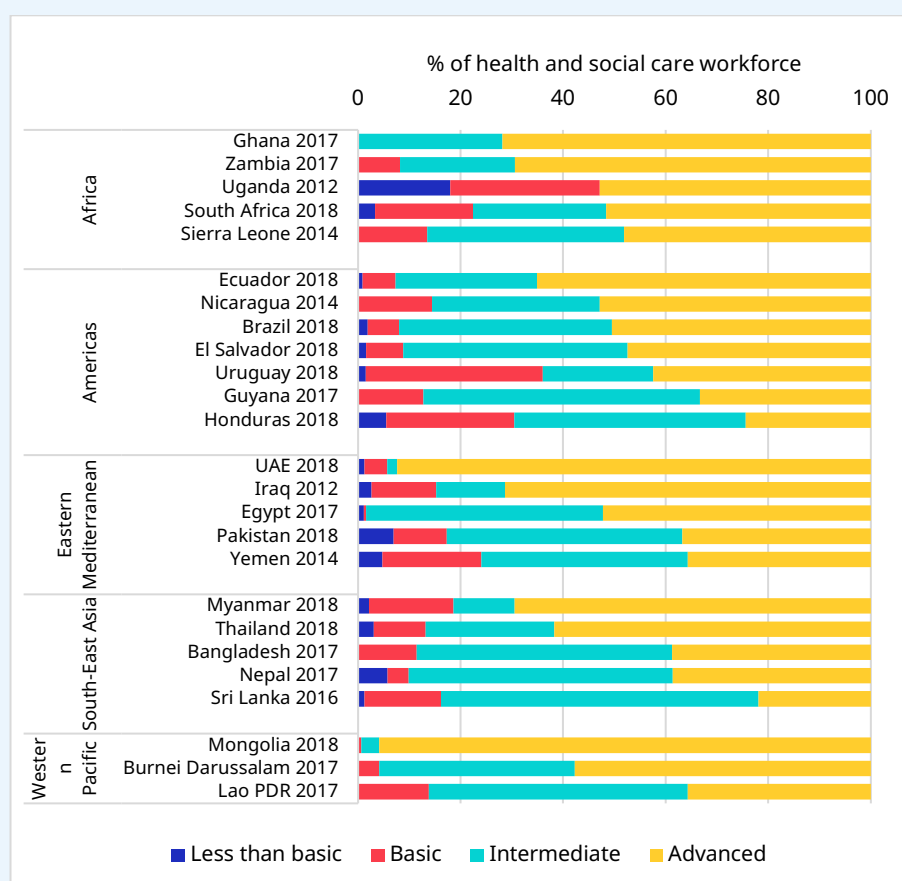
Table 1. Education categories

Education aggregate	ISCED 11 Category	ISCED 97 Category
Less than basic	No schooling 0. Early childhood education	No schooling 0. Pre-primary
Basic	1. Primary education 2. Lower secondary education	1. Primary education 2. Lower secondary education
Intermediate	3. Upper secondary education 4. Post-secondary non-tertiary	3. Upper secondary education 4. Post-secondary non tertiary
Advanced	5. Short-cycle tertiary 6. Bachelor's or equivalent 7. Master's or equivalent 8. Doctoral or equivalent	5. First stage tertiary 6. Second stage tertiary

Source: Adapted from ISCED 2011 (UNESCO 2012).

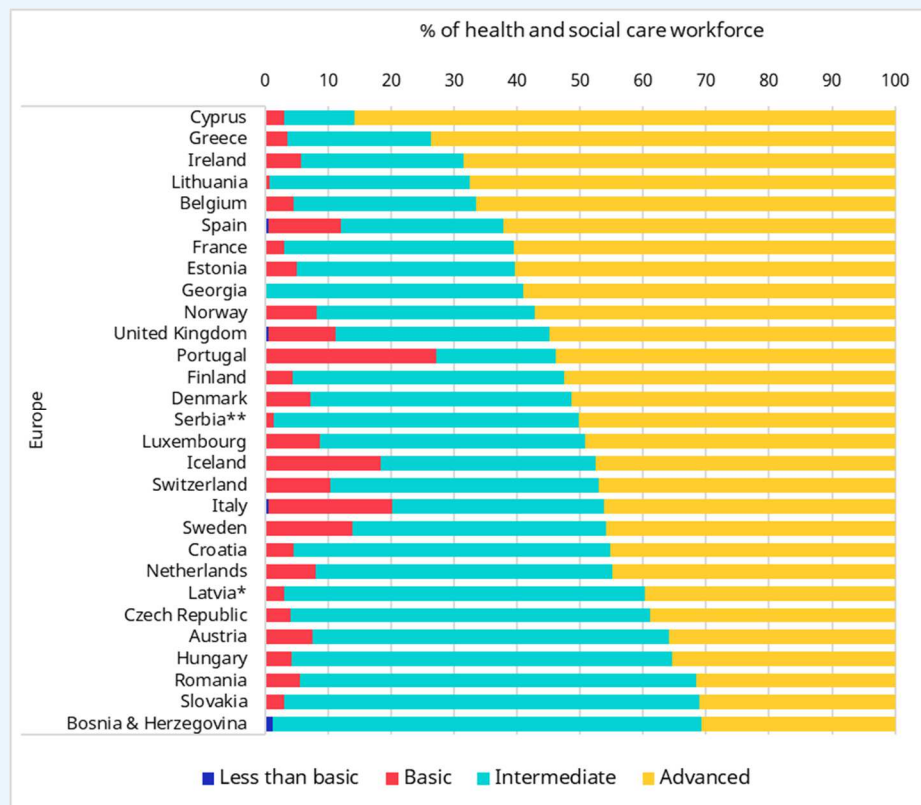
In most countries, the vast majority of health and social care workers had attained an intermediate or advanced level of education (figures 11a and 11b).

► **Figure 11a. Education levels attained by the health and social care workforce: Countries outside Europe, by WHO region, most recent available year**



Notes: PDR = People's Democratic Republic; UAE = United Arab Emirates; U.R. = United Republic.

► **Figure 11b. Education levels attained by the health and social care workforce: Countries in WHO Europe region, 2017**

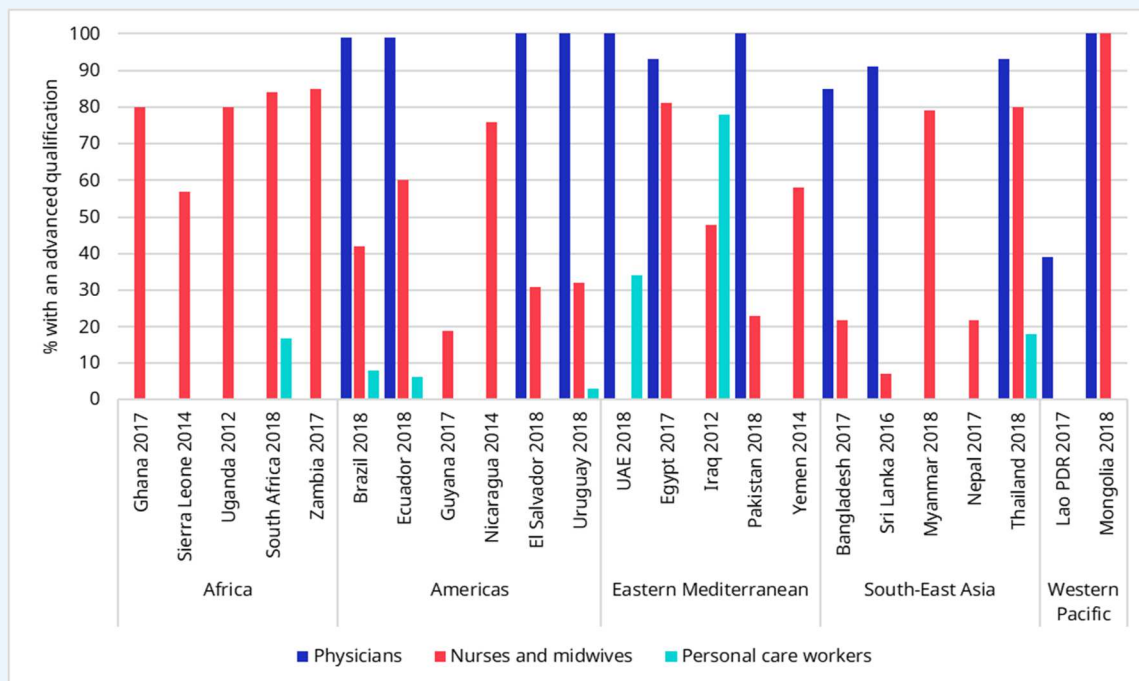


Notes: * Data from 2016. ** Data from 2018.

Figures 12a and 12b show the percentages of different occupation groups with advanced qualifications, where the sample size was sufficient to permit this level of disaggregation. In every country except Lao PDR, the vast majority of physicians had an advanced qualification. In most European

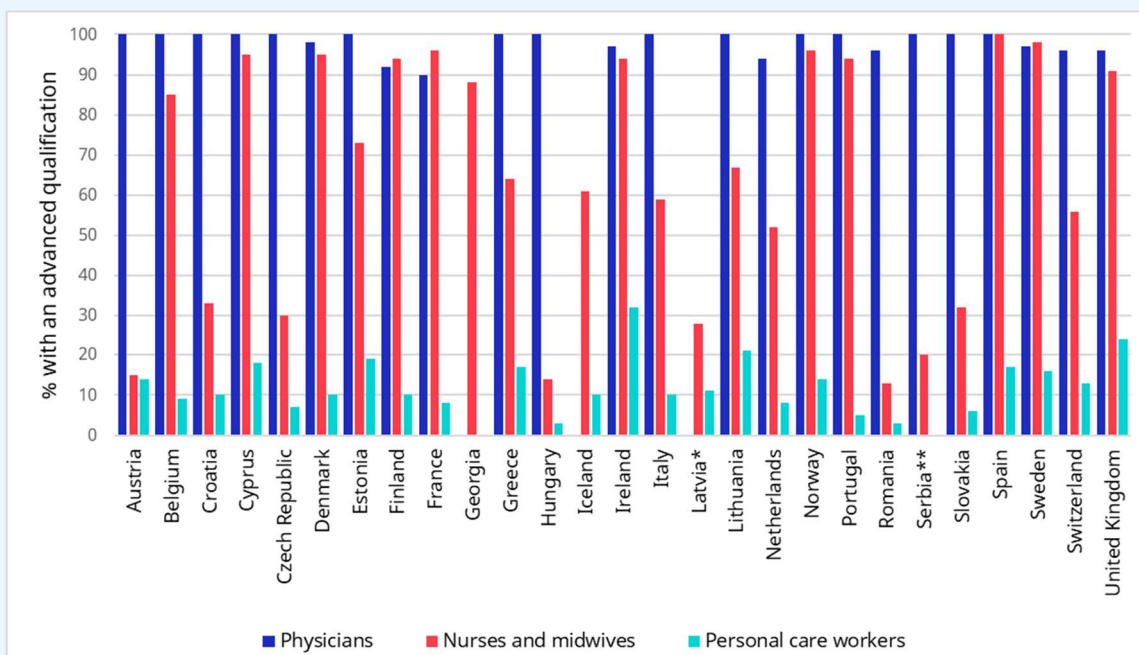
countries and about half of countries in other regions, the majority of nurses and midwives had an advanced level of formal education. It was much less common for personal care workers to have had this level of formal education, except in Iraq.

► **Figure 12a. Percentage of health and social care occupation groups with an advanced level of formal education: Countries outside Europe, by WHO region, most recent available year**



Notes: A missing bar indicates insufficient sample size for disaggregation. PDR = People's Democratic Republic; UAE = United Arab Emirates; U.R. = United Republic.

► **Figure 12b. Percentage of health and social care occupation groups with an advanced level of formal education: Countries in WHO Europe region, 2017**



Notes: * Data from 2016; ** Data from 2018.

► 2.5 Working conditions

The SDGs recognize decent work as a central factor in ensuring inclusive economic growth and its contribution to social progress. The ILO's Decent Work Agenda has four pillars: employment creation, social protection, rights at work and social dialogue, which are essential elements of SDG 8 ("promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all") and contribute to many other SDGs (ILO 2021b). The ILO's position is that decent work should be mainstreamed within all industry sectors (ILO 2021c). Within the health and social care sector

specifically, decent work is an important contributory factor to workforce recruitment, deployment and retention, and the ILO calls for health and social care workers to have the same right to organize and to bargain collectively as workers in other sectors (ILO 2017a). The provision of social protection and a safe and healthy working environment are critically important for health and social care workers, given the occupational risks involved in their work (ILO 2017a), an issue that has been tragically highlighted by the COVID-19 pandemic (WHO 2021c).

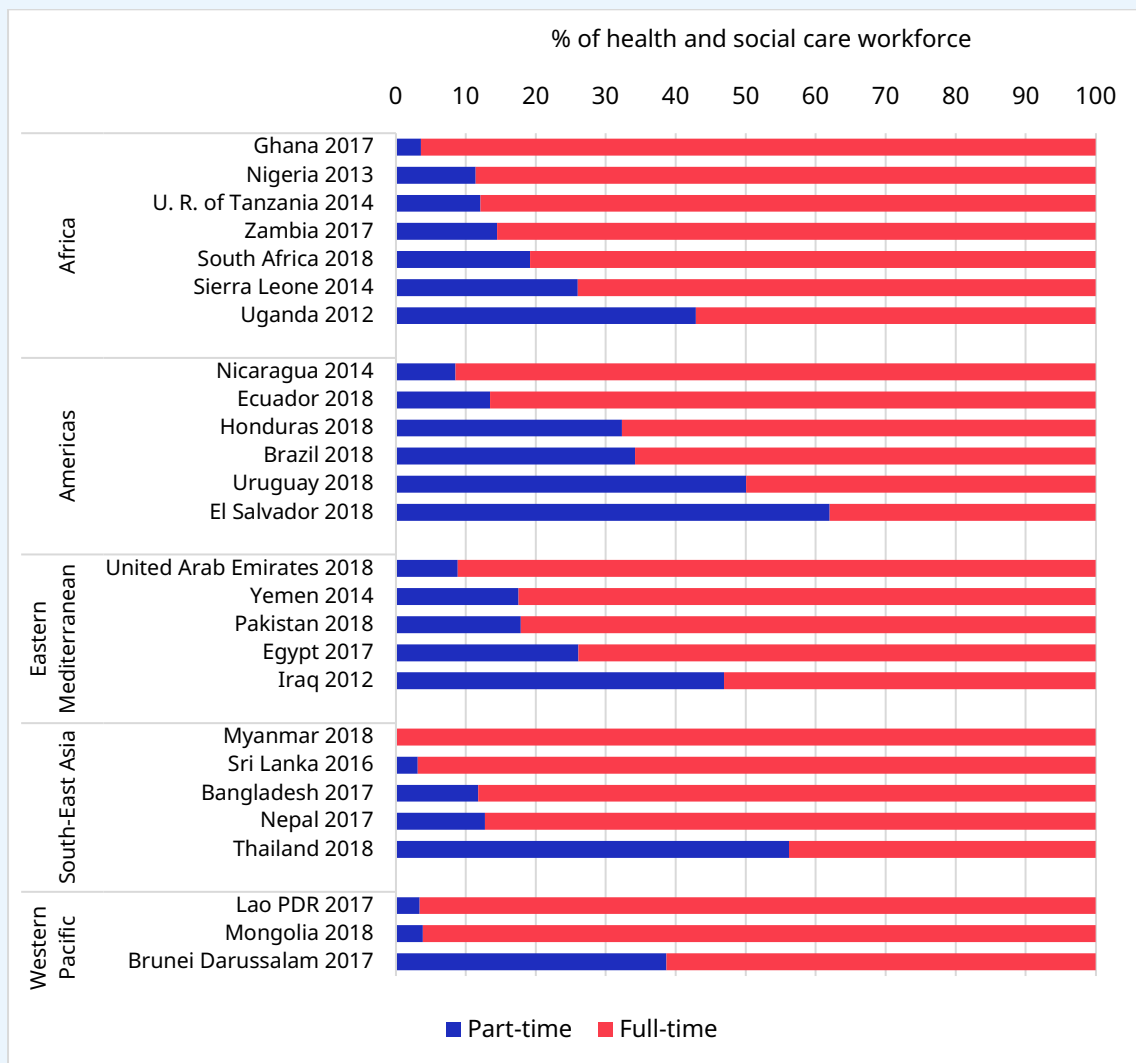
2.5.1 Part-time work within the health and social care workforce

The ILO Part-time Work Convention, 1994 (No. 175) underlines the importance of part-time workers being accorded equivalent pay (pro rata to their working hours), working conditions and employment rights as full-time workers. Because women are more likely than men to work part-time, adequate protection for the rights of part-time workers is an important element of gender equity (ILO 2021d). This is particularly applicable to the health workforce, 70 per cent of whom are women (WHO 2019b). Similarly, the ILO Workers with Family Responsibilities Convention, 1981 (No. 156) provides for equal opportunities in accommodating workers' needs arising from family responsibilities. This report did not analyse the hourly wages along full-time or part-time employment.

Different countries define "part-time" work in different ways. In this analysis, it is defined as fewer than 35 actual weekly hours worked. In ILOSTAT this

is recorded as a dichotomous variable: a person works either full-time or part-time. In most reporting countries, a minority of health and social care workers worked part-time (exceptions: El Salvador, Iceland, Netherlands, Switzerland, Thailand and Uruguay). Figure 13a shows that, outside Europe, part-time working was least common in the South-East Asia and Western Pacific regions, but that even in these regions there were two countries with higher rates of part-time work in the health and social care workforce (Brunei Darussalam and Thailand), despite relatively low levels of part-time work generally in these countries (World Bank 2021b). In Thailand, part-time work was commonly reported among physicians (68 per cent of whom worked part-time), nurses and midwives (51 per cent) and personal care workers (47 per cent). The sample size in Brunei Darussalam was too small for this more detailed analysis.

► **Figure 13a. Full-time/part-time employment in the health and social care workforce: Countries outside Europe, by WHO region, most recent available year**

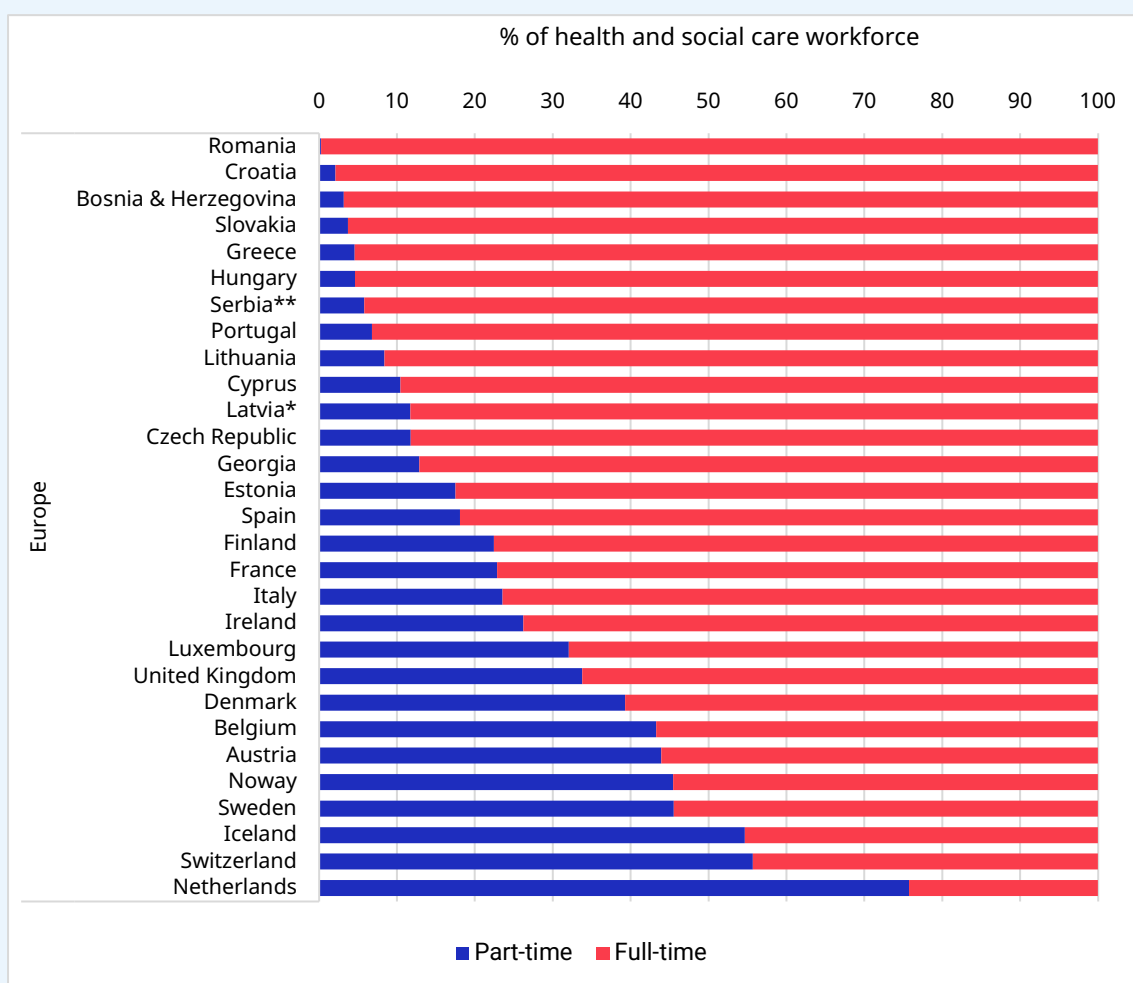


Notes: Part-time = fewer than 35 hours per week actually worked. PDR = People's Democratic Republic; U.R. = United Republic.

Similarly, full-time work was the norm in most countries in the European region (figure 13b), but several countries reported that over 40 per cent of health and social care workers work part-time, most notably the Netherlands. In that country, the national

rate of part-time work in 2017 was 55 per cent (World Bank 2021c), so the 75 per cent rate in the health and social care workforce indicates that health and social care workers were even more likely than other workers to work part-time.

► **Figure 13b. Full-time/part-time employment in the health and social care workforce: Countries in WHO Europe region, 2017**



Notes: Part-time = fewer than 35 hours per week actually worked. * Data from 2016. ** Data from 2018.

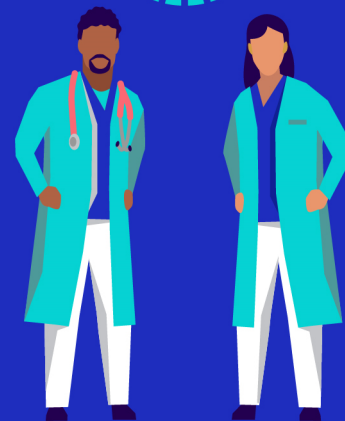
In most reporting countries, physicians, nurses and midwives were more likely than personal care workers to work full-time, but there were exceptions. For example, physicians in Brazil, Czech Republic, Egypt, El Salvador, Finland, Portugal, Thailand and United Arab Emirates were less likely than other health and social care occupations to work full-time – but still the majority of physicians worked full-time in every country except El Salvador and Thailand. In Brazil, Czech Republic, El Salvador, Estonia and Thailand, personal care workers were the group most likely to work full-time. In Iceland, Netherlands, Switzerland and Uruguay, most nurses and midwives worked part-time.

Figures 14a and 14b illustrate how, in most countries' health and social care workforces, women were more likely than men to work part-time (exceptions: Brunei Darussalam, Egypt, Georgia, Lithuania, Nepal, Nicaragua, Portugal, Sierra Leone, Thailand, United Republic of Tanzania, Uruguay, Yemen).

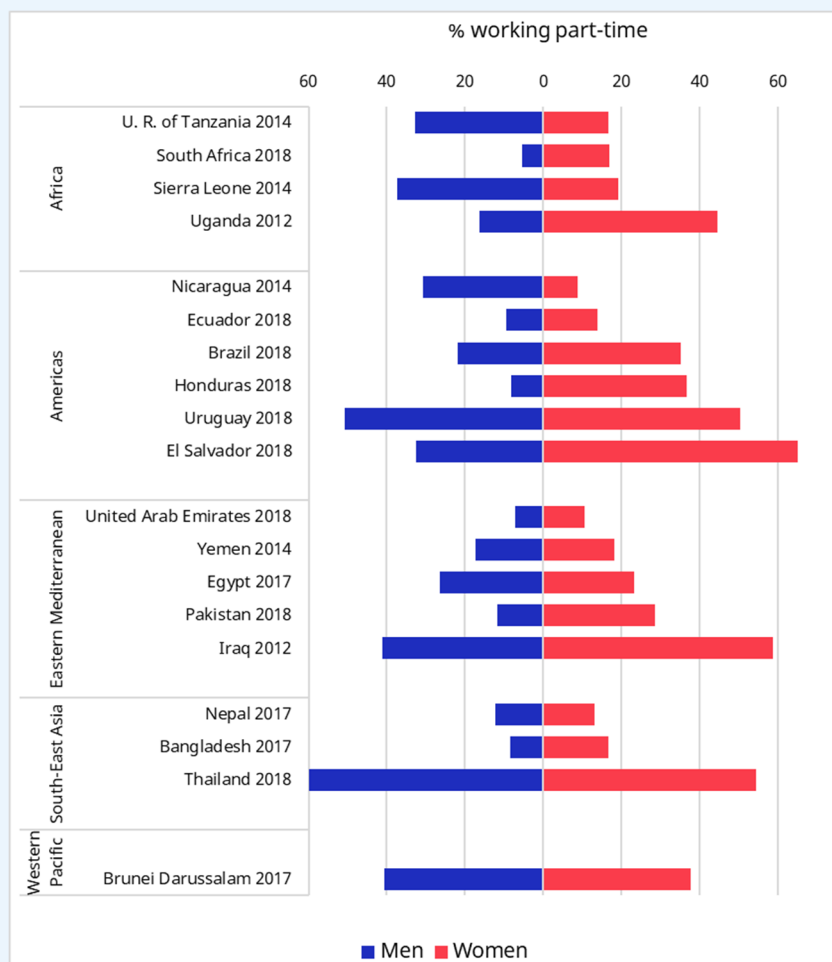
The Netherlands stands out as the country with the highest percentage of women working part-time (84 per cent), but four other countries recorded rates of 50 per cent or more: El Salvador, Iraq, Thailand and Uruguay. Thailand and Uruguay also had the highest rates of men working part-time (60 and 51 per cent respectively), with relatively high rates also evident in Brunei Darussalam, Iraq, Netherlands and Sierra Leone. Men working part-time was less common in Europe than in other regions.

► **Box 8**

Women are more likely than men to work part-time

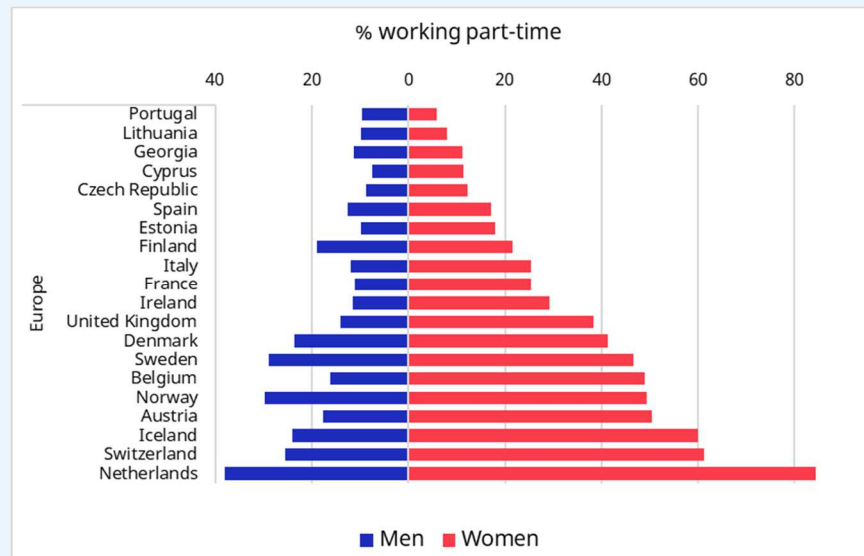


► **Figure 14a. Part-time employment in the health and social care workforce: Countries outside Europe, by WHO region, by sex, most recent available year**



Notes: Part-time = fewer than 35 hours per week actually worked. U.R. = United Republic.

► **Figure 14b. Part-time employment in the health and social care workforce: Countries in WHO Europe region, by sex, 2017**



Note: Part-time = fewer than 35 hours per week actually worked.

The above analysis of the share of health and social care workers working part-time highlights the limitations of using simple headcounts when assessing health and social care workforce availability. In countries with high rates of part-time

working, a headcount may give the impression that there are sufficient health workers, whereas in fact there could be a “hidden shortage” due to the level of part-time work.

2.5.2 Hours worked

The ILO’s Forty-hour Week Convention, 1935 (No. 47) and Reduction of Hours of Work Recommendation, 1962 (No. 116) advocate a maximum of 40 hours’ work in a week. The Nursing Personnel Convention, 1977 (No. 149) states that nurses should enjoy conditions at least equivalent to those of other workers in relation to: hours of work, convenient hours and shift work, weekly rest, and paid annual holidays. The Nursing Personnel Recommendation, 1977 (No. 157) specifies that normal daily hours of work should not exceed eight hours, except where alternative arrangements have been collectively agreed, and should never exceed twelve hours (including overtime).

The LFS variable used for calculating the average weekly hours includes all the actual hours that the respondent worked in the reference week and includes both full-time and part-time workers. It is likely that for some respondents this represents hours worked in more than one job, but in most cases, it refers to just one job.

For both men and women in the health and social care workforce, average working hours tended to be lower for European countries in comparison to countries in other regions (figures 15a and 15b). No country outside Europe reported that both men and women worked 40 hours or fewer on average. Typically, average weekly hours outside Europe were between 40 and 50, with some countries reporting over 50: Bangladesh (men), Nigeria (men), Pakistan (men), Sierra Leone (women), Uganda (women), United Republic of Tanzania (women and men). Thailand shows an average working week of over 40 hours despite having a relatively large proportion of part-time workers (figure 13a): this is because full-timers reported an average 52-hour working week and thus raised the overall average.

By contrast, most European countries reported average weekly working hours of 40 or fewer for both men and women (with the exceptions of Bosnia and Herzegovina, Croatia, Georgia, Romania, Serbia, Slovakia). However, in most European countries, the

average working week for physicians was over 40 hours (exceptions: Denmark, Finland, Italy, Lithuania, Portugal, Spain and Sweden). A few countries reported higher than this for men, but the maximum was 44 hours in Belgium. Scandinavian countries

tended to report the shortest working week for men, and Denmark, Ireland, Netherlands, Switzerland and the United Kingdom showed fewer working hours for women.

► Box 9



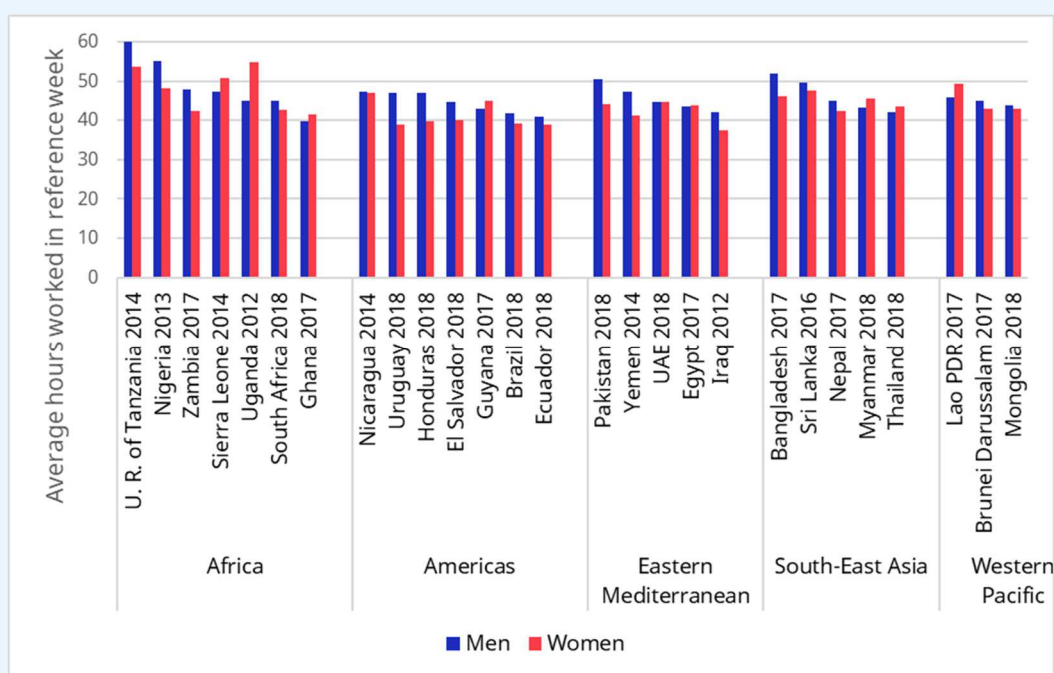
Most countries reported that, on average, men in the health and social care workforce worked more hours per week than women. However, there were several exceptions. In some countries, there was genuine parity because within occupation groups men and women worked on average the same number of hours, as in Egypt, Georgia, Guyana, Lao PDR and Romania. In other countries, nurses, midwives and personal care workers who were women worked more hours on average than their colleagues who were men, as in Croatia, Ghana, Latvia, Sierra Leone, Thailand and Uganda. It was, however, rare for women physicians to work longer hours than men physicians. This was observed in only three countries: Estonia, Portugal and Spain.

In most of the countries – and all of the European countries – in which men worked on average more hours than women, this pattern held true across all occupation groups. This indicates that the observed variation by sex can be attributed to gender norms rather than to variations in workforce composition. However, in a few cases the gender difference was driven by a single occupation group. For example, in the United Republic of Tanzania it was due to personal care workers and in Bangladesh it was mostly due to physicians. For other occupation groups in these countries, median hours worked were similar for men and women.

Although women were more likely than men to work part-time, the part-time cohort was relatively small: most health workers worked full-time. This explains

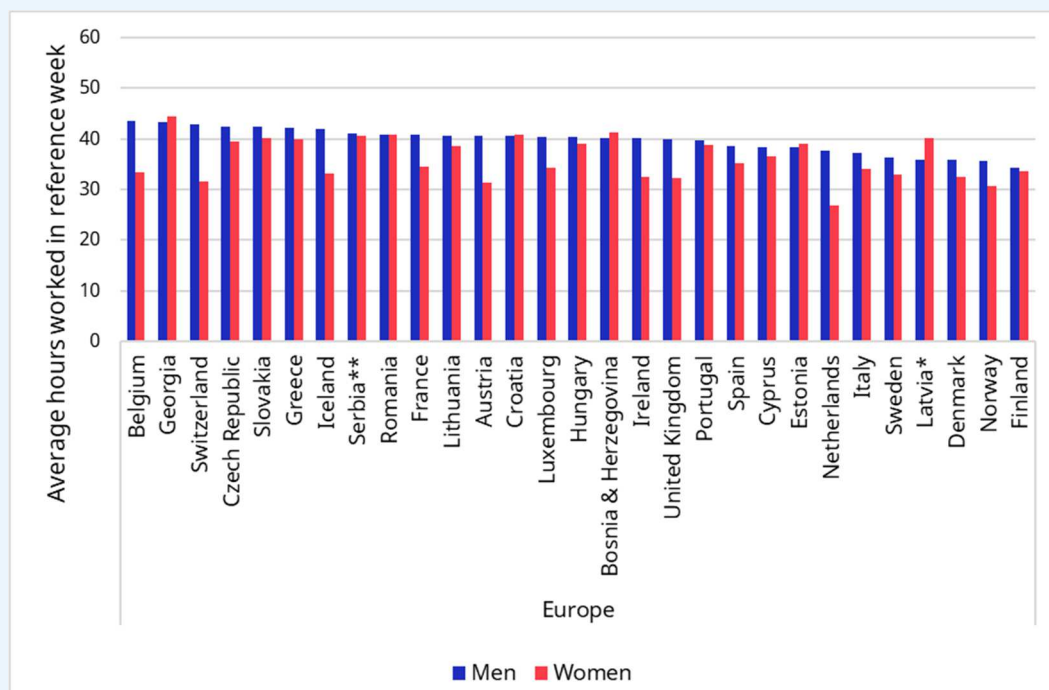
why the difference in working hours between men and women tended not to be very large.

► **Figure 15a. Average weekly hours worked by health and social care workers: Countries outside Europe, by sex, most recent available year**



Notes: PDR = People's Democratic Republic; UAE = United Arab Emirates; U.R. = United Republic.

► **Figure 15b. Average weekly hours worked by health and social care workers: Countries in WHO Europe region, by sex, 2017**



Notes: * Data from 2016. ** Data from 2018.

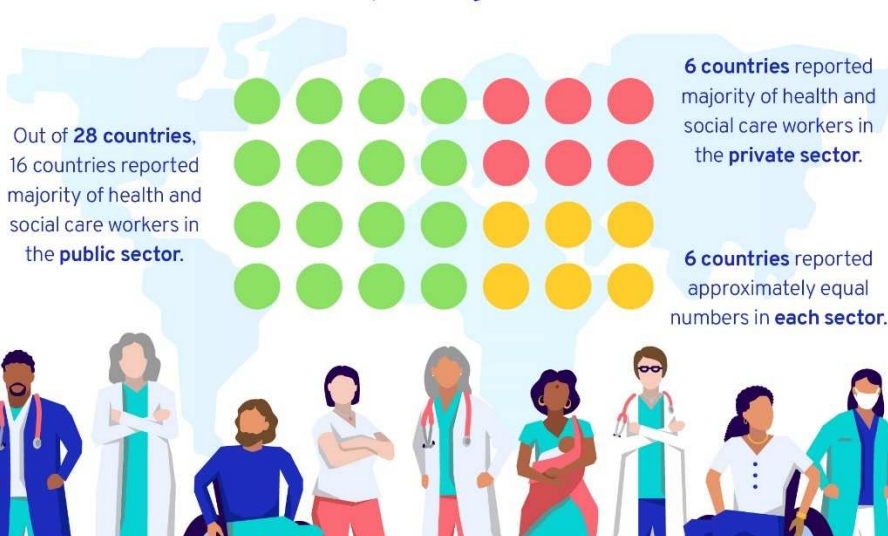
2.5.3 Distribution of the health and social care workforce across the public and private sectors

Most countries have “mixed health systems”, so achievement of UHC depends on the efforts of both public- and private-sector health services (WHO 2018a). The appropriate balance between the public and private sectors is highly context-dependent. Regulatory capacity should be sufficient to cover the

public and private sector healthcare workforce to promote equitable distribution of high-quality care (Kruk et al 2018).

► Box 10

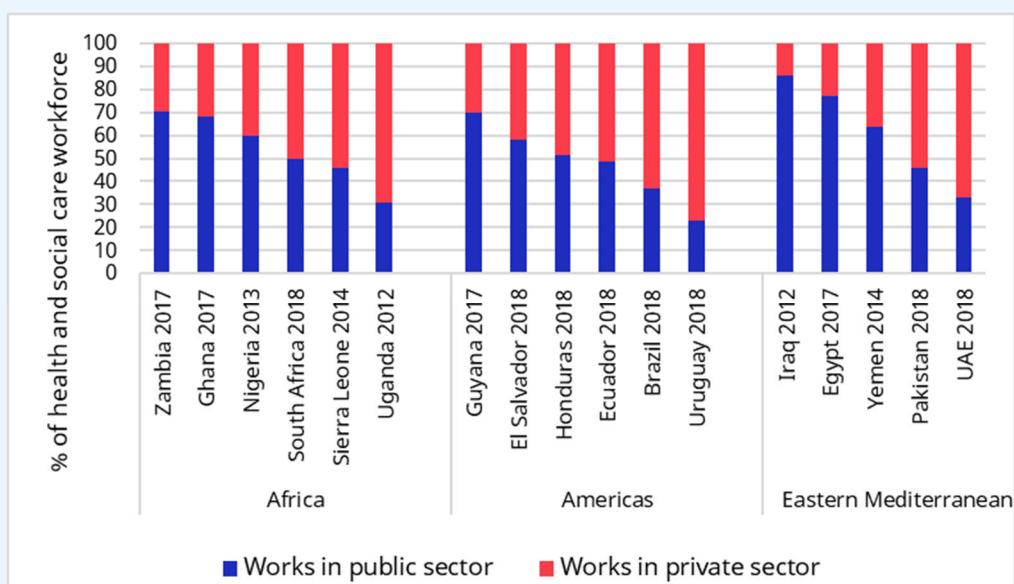
Distribution of health and social care workers across public and private sectors in 28 reporting countries



In 16 of the 28 reporting countries the majority of health and social care workers worked in the public sector, while in ten countries the majority worked in the private sector (Bangladesh, Brazil, Ecuador, Georgia, Nepal, Sierra Leone, Pakistan, United Arab Emirates, Uganda and Uruguay), and some countries had approximately equal numbers in each sector (figures 16a and 16b). In most reporting countries, nurses and midwives were more likely than

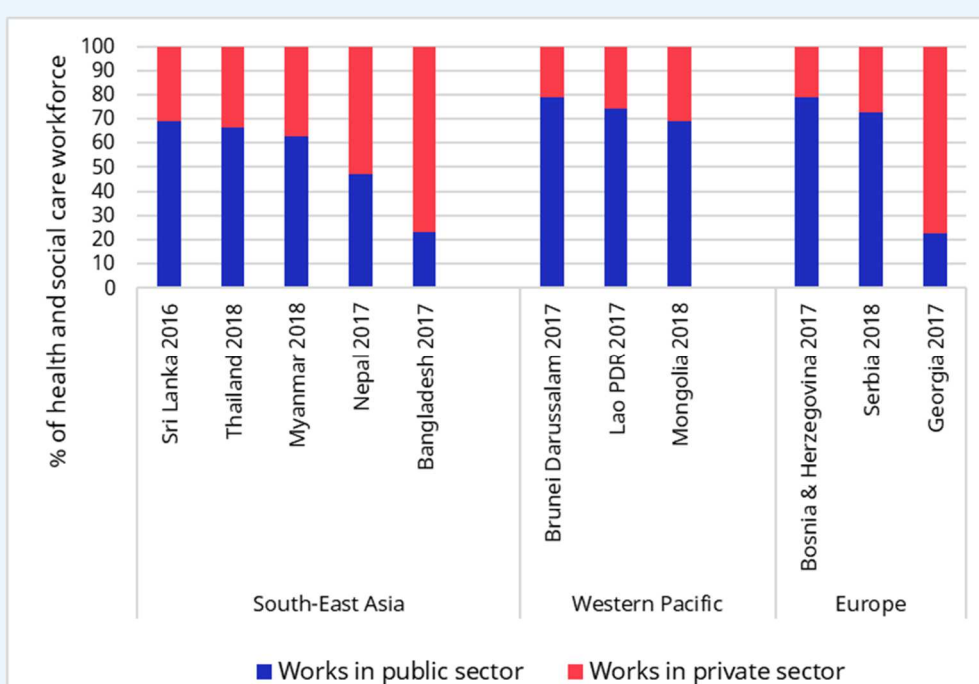
physicians and personal care workers to work in the public sector. The exceptions were Bangladesh, Pakistan, Sri Lanka, and United Arab Emirates, where physicians were more likely than nurses to be public-sector workers.

► **Figure 16a. Percentage of health and social care workforce working in the public and private sectors: WHO Africa, Americas and Eastern Mediterranean regions, most recent available year**



Note: UAE = United Arab Emirates.

► **Figure 16b. Percentage of health and social care workforce working in the public and private sectors: WHO South-East Asia, Western Pacific and Europe regions, most recent available year**



Note: PDR = People's Democratic Republic.

2.5.4 Type of contract

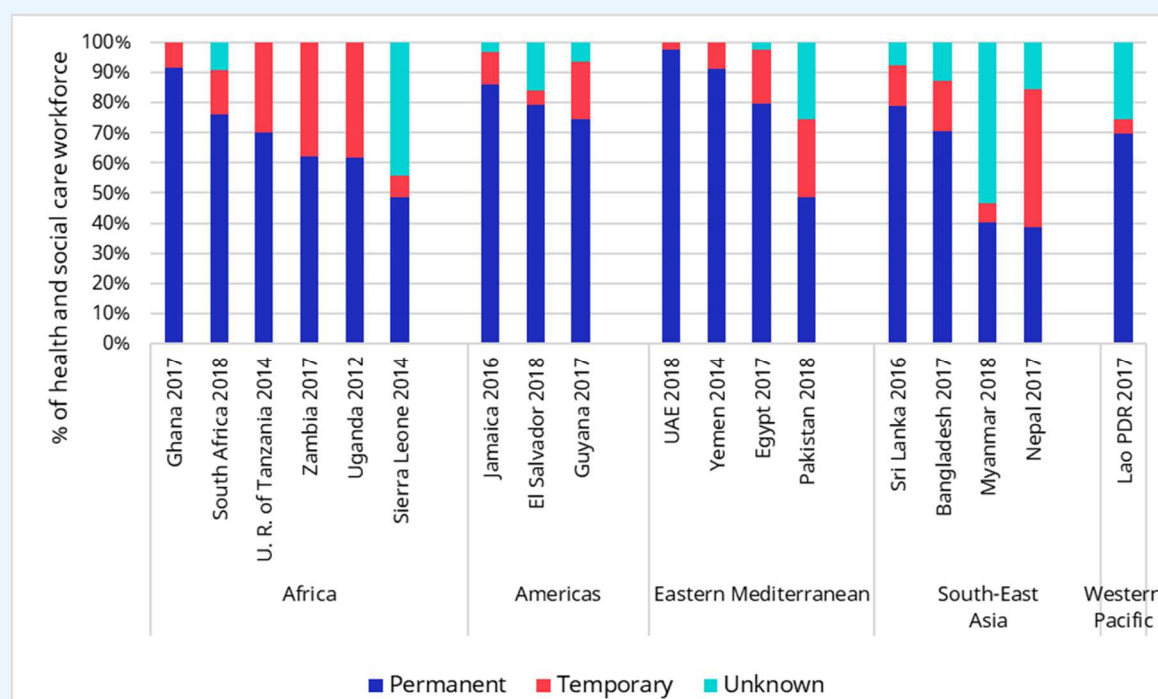
Cost and efficiency concerns in many settings have resulted in non-standard forms of employment (NSFE) within the health and social care sector, such as fixed term, temporary work, temporary agency work and dependent self-employment. If properly designed and regulated, NSFE can help organizations to be more responsive to changing demands and can be beneficial to workers needing to reconcile work and family or other responsibilities. However, they can expose workers to decent work deficits unless appropriate protections are in place (ILO 2017a).

The LFS data show the proportions of health and social care workers on permanent or temporary contracts. In most reporting countries, the majority had permanent contracts (figures 17a and 17b). Nepal was the only country with more health and social care workers on temporary contracts than on permanent contracts. However, relatively high

proportions of temporary contracts (>20 per cent) were evident in Pakistan, Spain, United Republic of Tanzania (mostly personal care workers), Uganda and Zambia. Furthermore, in several countries more than 20 per cent did not know whether their contract was permanent or temporary; this was the case in Greece, Lao PDR, Luxembourg, Myanmar, Pakistan, Sierra Leone and Slovakia.

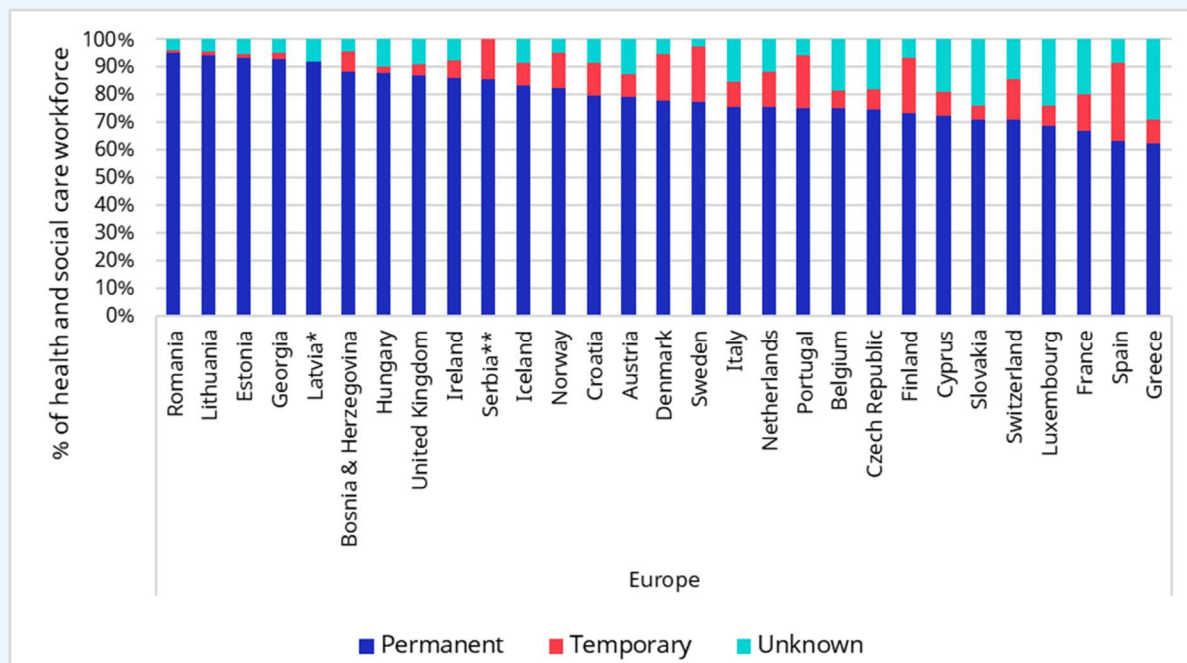
In most reporting countries, personal care workers were much more likely than physicians, nurses and midwives to have a temporary contract. The main exceptions were Denmark and Egypt (where around 30 per cent of physicians reported having a temporary contract), and Bangladesh, Nepal and Pakistan (where substantial proportions of nurses and midwives had temporary contracts: 22, 46 and 24 per cent respectively).

► Figure 17a. Contract type: Countries outside Europe, by WHO region, most recent available year



Notes: PDR = People's Democratic Republic. UAE = United Arab Emirates.

► Figure 17b. Contract type: Countries in WHO Europe region, 2017



Notes: * Data from 2016. ** Data from 2018.

2.5.5 Employment status

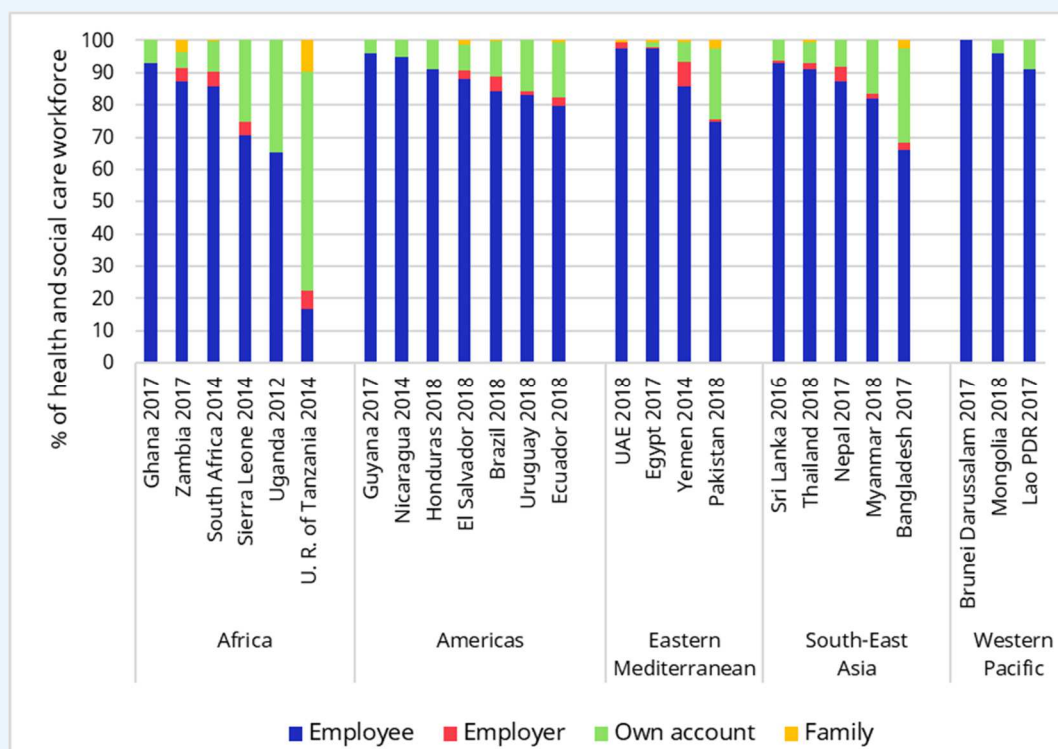
In every reporting country except the United Republic of Tanzania, most health and social care workers were employees (figures 18a and 18b). In Europe, hardly any health and social care workers were employers. This was more common in other regions, but still rare. In the United Republic of Tanzania, 68 per cent were “own-account” workers (see the glossary): this is probably linked to the fact that the vast majority of the Tanzanian sample were personal care workers. Relatively large percentages (>20 per cent) of own-account workers were also evident in Bangladesh, Greece, Luxembourg, Pakistan, Sierra Leone, Slovakia and Uganda. In most of these countries, most of the own-account workers were physicians. The main exceptions were Slovakia (where they were mostly personal care workers) and Uganda (where they were mostly nurses and midwives).

► Box 11



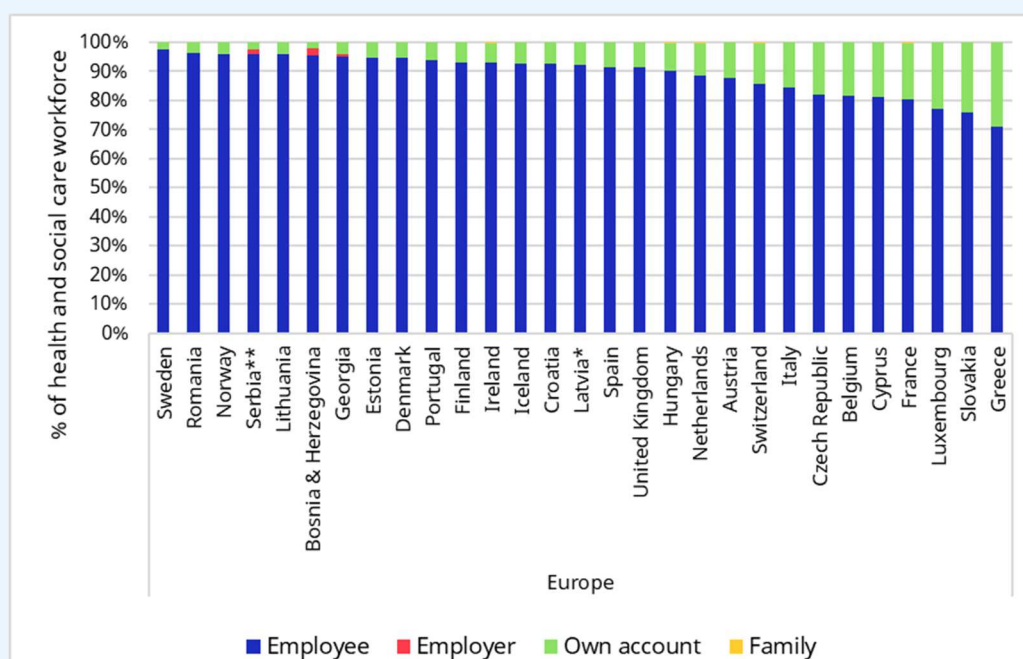
Most **health** and **social care** workers are **employees**

► **Figure 18a. Employment status: Countries outside Europe, by WHO region, most recent available year**



Notes: PDR = People's Democratic Republic; UAE = United Arab Emirates; U.R. = United Republic.

► **Figure 18b. Employment status: Countries in WHO Europe region, 2017**



Notes: * Data from 2016. ** Data from 2018.

2.5.6 Gender pay gap

Pay is a major factor in recruitment, retention and motivation. For health workers, it reflects the level of recognition and value attached to their work. The level of pay should be comparative and competitive to occupational groups of similar levels in other sectors, and reflect qualifications, responsibilities, duties and experience. Adequate income is also important for the independence of health and social care workers in acting according to professional ethics (ILO 2017a).

Gender pay gaps exist for many reasons (Rubery and Koukiadaki 2016), and are a pervasive problem across many industry sectors, including health and social care (Boniol et al. 2019). SDG target 8.5 is to “achieve full and productive employment and decent work for all women and men, including for young people and persons with disabilities, and equal pay for work of equal value”.

Pay was not always reported in the ILOSTAT data, but where it was present, all sources of labour-related income were added together to include earnings from all jobs. Monthly earnings were converted to weekly earnings, and then hourly rates were calculated using all weekly hours worked as reported by the respondent. Median hourly earnings were then calculated separately for men and women. Median hourly rates were used to calculate the gender pay gap. This is a relatively unsophisticated method of estimating a gender pay gap which does

not attempt to control for known confounding factors, and these results should be interpreted with this limitation in mind.

Considering first the 16 reporting countries outside Europe, figure 19a shows the ratio of earnings of women in the health and social care workforce against those of men. In most countries, women’s median earnings were lower than men’s (with the exceptions of Guyana, Honduras, Thailand and Zambia). The gender pay gap was largest in Brazil, Ecuador and Uruguay.

The relatively low pay for women might be at least partly due to the fact that women are often concentrated in lower-paid occupations. However, this is clearly not the sole explanation, because in many countries the same patterns were evident even within occupation groups. Out of eight countries with sufficient data for physicians, seven reported lower median pay for women than for men (with the exception of Egypt). Out of six countries with sufficient data for personal care workers, four reported lower pay for women (with the exceptions of Sri Lanka and Thailand). Out of 14 countries with sufficient data for nurses and midwives, however, eight reported equal or higher pay for women. Of course, within an occupation group it is possible that men are more likely than women to rise to senior positions, which might explain some or all of these results.

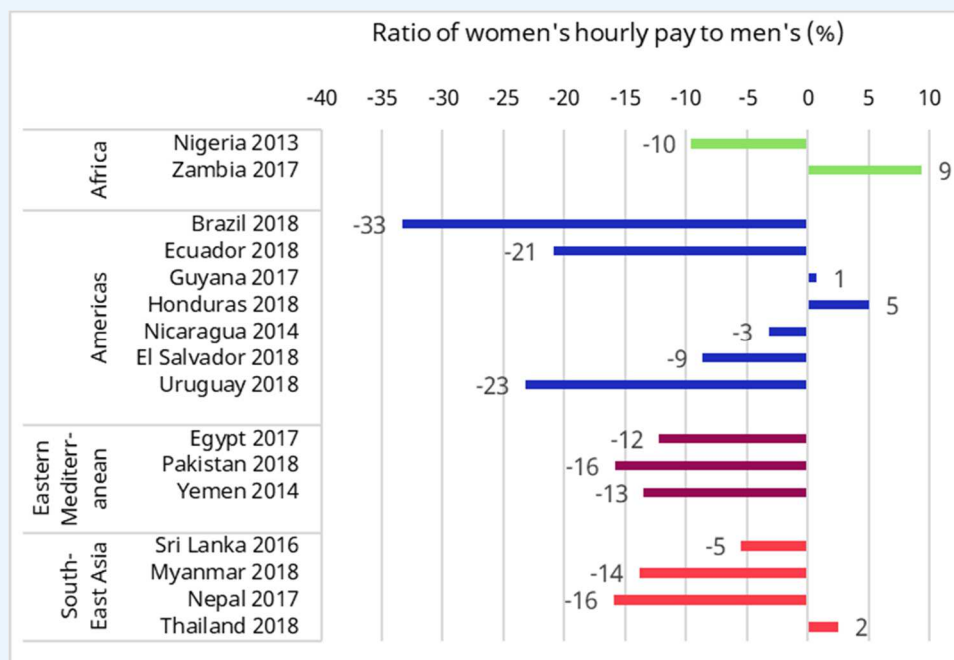
► Box 12

Gender pay gap in the health sector



In most countries, women’s median earnings are **lower** than men’s.

► **Figure 19a. Gender pay gap in the health and social care workforce: Countries outside Europe, by WHO region, most recent available year**



An analysis by WHO based on data from 21 countries concluded that there was a 28 per cent gender pay gap within the health workforce, which reduced to 11 per cent when working hours and similar occupations were taken into account (Boniol et al. 2019). The gender pay gaps illustrated in figure 19a tend to be smaller than 28 per cent, which may be due to the inclusion of a different set of countries and/or to different analysis methods such as treatment of outliers.

For countries in Europe, income data were provided in the form of nationally-defined income deciles: the distribution of national earnings was split into 10 equal ranges. The data related to reported monthly earnings. The two bottom and two upper deciles

were summed to form quintile 1 (lowest paid 20 per cent of the workforce) and quintile 5 (highest paid 20 per cent). Figure 19b shows, out of those with income data, the percentage of men and the percentage of women in each of these two quintiles. Because women are more likely than men to work part-time, this analysis was restricted to those working full-time.

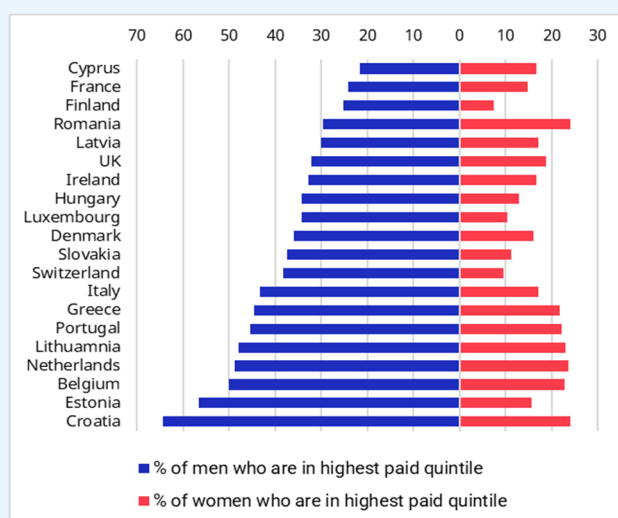
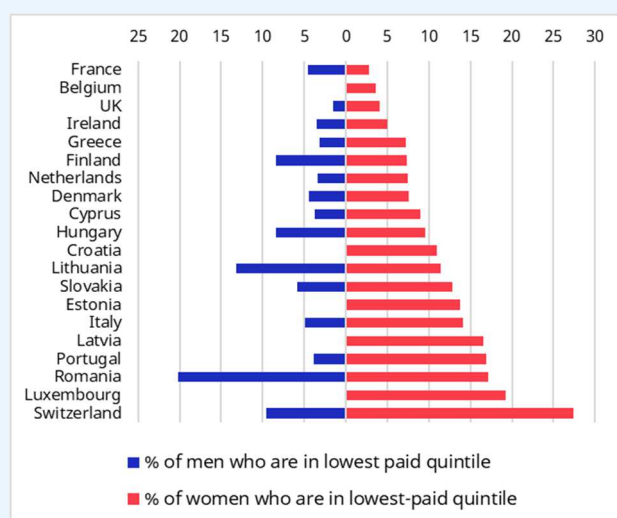
In most countries, women working full-time were more likely than men working full-time to be in the lowest-paid quintile, with the biggest differences in Latvia, Luxembourg and Switzerland. The exceptions were: Finland, France, Hungary, Ireland and Lithuania, where men and women were approximately equally likely to be in the lowest quintile.

In every country, men working full-time were more likely than women working full-time to be in the highest-paid quintile, with the biggest gender differences in Croatia and Estonia. In Cyprus and Romania, the gender pay gap was relatively small, but still evident.

As noted above, relatively low pay for women might be at least partly due to the fact that women are often

concentrated in lower-paid occupations. However, this is clearly not the sole explanation for the observed gender pay gaps in Europe: of the 19 countries reporting earnings for personal care workers, 14 reported that women were more likely than men to be in the lowest-paid quintile (with the exceptions of Finland, France, Latvia, Romania and Slovakia), and all reported that men were more likely than women to be in the highest-paid quintile.

► **Figure 19b. Gender pay gap among health and social care workers working full-time: Countries in WHO Europe region, 2017**



Note: UK = United Kingdom.

Conclusions: What LFS data can tell us about the health workforce

National statistical agencies and owners of administrative data use a wide range of data sources to produce official workforce statistics. Each source has different objectives, methods and coverage, and they are not necessarily designed specifically for the purpose of monitoring the health and social care workforce. Therefore, data from different sources may be different for the same variable, and different data sources are suitable for different purposes.

LFS are the only available data source to provide access to microdata, and they are also relatively strong on occupation data coding providing internationally comparable data. On the other hand, LFS are a less adequate source for ensuring a reliable

count of the health workforce for specific occupations groups because of the LFS sampling methods, and at times small sample sizes in specific categories. To capture the number of health workers in specific occupations in a country (for example, doctors, dentists, nurses and midwives), whether professionally active or all those licensed to practice, professional registries and other administrative records often provide more reliable data when they are well developed and maintained. This is one reason why LFS are rarely used to estimate the density of doctors, nurses and other health occupations (per population), and why estimates of all health and social care worker density are not shown in this report.

However, the use of detailed occupation information from LFS data provides useful insights into the characteristics and working conditions of the health and social care workforce which are rarely available from other data sources.

For example, the analyses in this report indicate that:

- ▶ The health and social care workforce in high-income countries makes up a larger proportion of the total labour force than in low- and middle-income countries.
- ▶ Although most health and social care workers (and the vast majority of physicians, nurses and midwives) work within the health sector, in many countries – especially outside Europe – large numbers work in other industry sectors such as public administration and private households.
- ▶ Although most health and social care workers have full-time positions, in many countries a large proportion work part-time, and women are more likely than men to do so. This highlights the importance of taking working hours into account rather than using simple headcounts to assess health and social care workforce availability.
- ▶ Keeping in mind the recommendation that weekly work hours should be 40 hours maximum, on average, health and social care workers in European countries work fewer than 40 hours per week (except for physicians, who work slightly more than 40 hours on average), whereas in other regions it is typical for health and social care workers to work more than 40 hours per week.
- ▶ In 16 out of 28 reporting countries, most health and social care workers work in the public sector, in six countries most work in the private sector, and in the remaining six countries there is a fairly equal distribution between the public and private sectors. In most countries, physicians and personal care workers are more likely than nurses and midwives to work in the private sector.
- ▶ Although most health and social care workers have a permanent contract of employment, in some countries a significant number has another type of contractual arrangement. This is especially true of personal care workers, but in some countries large numbers of physicians, nurses and midwives are on temporary contracts.
- ▶ In most countries, most health and social care workers are employees, but in some countries there are large numbers of “own account” workers.
- ▶ In nearly all reporting countries, there is a gender pay gap within the health and social care workforce which is unlikely to be due solely to women being more likely to work part-time and in lower-paid occupations.
- ▶ In nearly all countries, the majority of nurses, midwives and personal care workers are women. The exceptions are mostly countries where women’s labour force participation rate is very low generally. In most European countries, there are also more women than men working as physicians.
- ▶ In most countries, the vast majority of health and social care workers (and nearly all physicians) had attained an intermediate or advanced level of formal education.

This analysis can help to highlight specific occupation groups and countries which are at heightened risk of decent work deficits and demographic imbalances. It can also provide insights to improve understanding and interpretation of analyses from other sources of data on the health and social care workforce.

► Box 13



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Annex 1

Methods

Labour Force Survey microdata were selected for inclusion using the following criteria:

1. The respondent was of working age, i.e. aged 15+ (ilo_wap=1)
2. The respondent was classed as either employed or unemployed (ilo_lfs in (1,2))
3. ISCO 4-digit (or ISCO 3-digit) code was present (ISCO-08 and ISCO-88)

Thus, cases with missing ISCO coding were not included. Detailed ISCO codes for all respondents were extracted, not just health and social care workforce ones. The ISCO codes were then mapped against the official ISCO list to identify spurious codes. Some countries had defined extra codes to describe local labour force conditions, and these remain relevant within the general 2-digit category. For health and social care workers, a small number of such ISCO codes were amended to transform them into legitimate codes.

Table A1.1 shows the ISCO codes considered to be part of the health and social care workforce and therefore included in the analyses in this report. European countries and a handful of other countries had ISCO-08 coding at 3 digit level, and these were acceptable for inclusion. For descriptive analysis the following professions were included: physicians (code 221), nurses and midwives (222, 322) and personal care workers (532). All other 3-digit codes were placed in the "other" category, as there was not enough detail to categorize them more precisely.

No verification of ISCO codes was performed by the ILO when the data were being processed. As a result, the data probably include some inconsistent coding. However, they were generally consistent over time, indicating that this is not a major limitation.

For each individual country, the size of the total labour force according to the LFS was estimated, and compared with the labour force size published in ILOSTAT. The LFS estimates tended to be slightly lower, but typically by a small margin of around 1-2 per cent. It was assumed that the health and social care workforce had been underestimated to the same degree and the health and social workforce numbers were adjusted upwards by the same amount. Using this shortfall as an indication of the resulting shortfall in the health and social care workforce weights, the health and social care workforce numbers were adjusted up by that amount to give a weighted total number of health and social care workers.

The sum of the total weights per country and year were compared with those published in ILOSTAT for the labour force (or with employment totals where there were no unemployed cases in the sample). Allowing for the uncoded ISCO codes that were not used, these totals were in line with and often a little lower than those published for the total labour force. Where multiple time periods were available, in most cases the overall weighted totals and the health and social care workforce totals followed a consistent pattern across years, even when the actual totals appeared to be a little lower than published ILO total workers.

The presence of the various health and social care workforce ISCO codes was evaluated for each country. They were then grouped to levels where there were enough data. This usually meant that they had a significant percentage of all health and social care workforce codes, but with a minimum threshold of 50-100 sample units for small countries. For example, physicians would always represent a smaller number of respondents than nurses/midwives, but usually the physician category was sufficiently large for stand-alone analysis. As a result of this type of grouping, the composition of the health and social care workforce varied between countries, which to some extent affects the ability to make comparisons between countries.

► **Table A1.1. Definition of health and social care workforce using ISCO occupation codes**

ISCO-08	ISCO-88	Description
22	22	Health professionals
221	222	Medical doctors
2211	2221	Generalist medical practitioners
2212		Specialist medical practitioners
222	223	Nursing and midwifery professionals
2221	2230	Nursing professionals
2222	2230	Midwifery professionals
223	-	Traditional and complementary medicine professionals
224	-	Paramedical practitioners
226	222	Other health professionals
2261	2222	Dentists
2262	2224	Pharmacists
2263	-	Environmental and occupational health and hygiene professionals
2264	-	Physiotherapists
2265	3223	Dieticians and nutritionists
2266	-	Audiologists and speech therapists
2267	-	Optometrists and ophthalmic opticians
2269	2229	Health professionals not elsewhere classified
32	31	Health associate professionals
321	313	Medical and pharmaceutical technicians
3211	3133	Medical imaging and therapeutic equipment technicians
3212	-	Medical and pathology laboratory technicians
3213	3228	Pharmaceutical technicians and assistants
3214	-	Medical and dental prosthetic technicians
322	323	Nursing and midwifery associate professionals
3221	3231	Nursing associate professionals
3222	3232	Midwifery associate professionals
323	324	Traditional and complementary medicine associate professionals
325	322	Other health associate professionals
3251	3225	Dental assistants and therapists
3252	-	Medical records and health information technicians
3253	-	Community health workers
3254	3224	Dispensing opticians
3255	3226	Physiotherapy technicians and assistants
3256	3221	Medical assistants
3257	3222	Environmental and occupational health inspectors and associates
3258	-	Ambulance workers
3259	3229	Health associate professionals not elsewhere classified
53	51	Personal care workers
532	513	Personal care workers in health services
5321	5132	Health care assistants
5322	5133	Home-based personal care workers
5329	-	Personal care workers in health services not elsewhere classified
1342	-	Health service managers
1343	-	Aged care service managers
2634	2445	Psychologists
2635	2446	Social work and counselling professionals
3344		Medical secretaries
3412	3460	Social work associate

Note: These codes represent two separate cohorts of occupations, using the ISCO codes available in the data. Only five countries used the older ISCO-88 codes. These were South Africa, Nigeria, Tanzania, Nicaragua and Yemen.

Weighted data were tabulated by country-specific health and social care workforce categories and also by sex. These numbers were then cross-tabulated to calculate percentage breakdowns within the other classifications being examined.

Country data were then evaluated for analysis for inclusion in this report. A minimum of five sample units was required for separate analysis of a sub-group of health and social care workers. Cells with fewer than five sample units were suppressed, but this was rarely required because most countries had sufficient numbers for it not to be necessary. If a country is missing from a graph or table, this indicates that the country did not submit data on that indicator or that there were insufficient respondents in the sub-group of interest.

Because LFS are sample surveys, the analyses reported in Chapter 2 are subject to uncertainty, the extent of which varies according to the sample size and the indicator value reported for the country. Table A1.2 shows 95 per cent confidence intervals by country for analysis based on the whole labour force (i.e. Section 2.1), and table A1.3 shows the same for analyses based on all health and social care workers (i.e. most of the analysis from Section 2.2 onwards). A confidence interval of ± 5 for an estimate of 40 per cent means that the “real” indicator value is likely to be between 35 and 45 per cent. Comparisons between countries should be made with these confidence intervals in mind – differences between countries which fall within these confidence intervals may simply be a result of sampling error. Analyses based on smaller sub-groups (such as individual occupation groups) are subject to even wider confidence intervals (not shown) and should be interpreted accordingly. Note also that these confidence intervals do not take into account other potential sources of error such as interviewer errors and coding errors.

► **Table A1.2. 95 per cent confidence intervals for analysis of health and social care workforce as a percentage of the total labour force, by country**

Country	All active workers sample size	Value reported for the country	95% confidence interval
Austria	92 715	7.5	0.2
Bangladesh	181 283	0.8	0.0
Belgium	20 810	8.4	0.4
Bosnia and Herzegovina	6 806	3.6	0.4
Brazil	918 010	5.3	0.0
Brunei Darussalam	6 102	3.8	0.5
Croatia	12 556	4.9	0.4
Cyprus	19 466	4.4	0.3
Czech Republic	19 071	6.0	0.3
Denmark	51 546	10.3	0.3
Ecuador	117 332	2.5	0.1
Egypt	93 648	2.3	0.1
El Salvador	31 930	2.3	0.2
Estonia	14 565	4.8	0.3
Finland	12 391	10.8	0.5
France	34 762	7.4	0.3
Georgia	36 025	3.5	0.2
Ghana	17 949	1.5	0.2
Greece	93 701	4.9	0.1
Guyana	5 281	3.5	0.5
Honduras	11 239	1.9	0.3
Hungary	96 974	3.9	0.1
Iceland	8 479	8.1	0.6
Iraq	35 156	2.4	0.2
Ireland	67 518	8.8	± 0.2
Italy	215 040	8.2	± 0.1
Lao PDR	12 561	1.3	± 0.2
Latvia	18 825	3.9	± 0.3
Lithuania	31 709	4.8	± 0.2

Country	All active workers sample size	Value reported for the country	95% confidence interval
Luxembourg	4 329	5.6	±0.7
Mongolia	18 158	3.5	±0.3
Myanmar	54 567	0.5	±0.1
Nepal	16 727	2.1	±0.2
Netherlands	41 445	9.9	±0.3
Nicaragua	12 607	1.7	±0.2
Nigeria	8 985	1.4	±0.2
Norway	13 736	13.4	±0.6
Pakistan	76 588	1.3	±0.1
Portugal	74 902	6.5	±0.2
Romania	103 037	4.2	±0.1
Serbia	50 232	5.0	±0.2
Sierra Leone	7 488	1.5	±0.3
Slovakia	39 591	6.6	±0.2
South Africa	84 513	3.6	±0.1
Spain	43 296	6.9	±0.2
Sri Lanka	32 683	1.5	±0.1
Sweden	154 231	13.1	±0.2
Switzerland	42 813	9.5	±0.3
Tanzania, U.R.	21 851	2.9	±0.2
Thailand	460 928	1.5	±0.0
Uganda	11 175	1.1	±0.2
United Arab Emirates	30 704	2.1	±0.2
United Kingdom	38 199	9.3	±0.3
Uruguay	52 984	6.5	±0.2
Yemen	17 536	1.3	±0.2
Zambia	6 921	1.8	±0.3

Note: values of ±0.0 represent a confidence interval greater than 0 but less than 0.05.

► **Table A1.3. 95 per cent confidence intervals for analysis of the characteristics of the entire health and social care workforce, by country**

Country	Health and social care workers sample size	Value reported for the country				
		10% or 90%	20% or 80%	30% or 70%	40% or 60%	50%
Austria	7 036	±1	±1	±1	±1	±1
Bangladesh	935	±2	±3	±3	±3	±3
Belgium	1 738	±1	±2	±2	±2	±2
Bosnia and Herzegovina	237	±4	±5	±6	±6	±6
Brazil	43 414	±0	±0	±0	±0	±0
Brunei Darussalam	216	±4	±5	±6	±7	±7
Croatia	581	±2	±3	±4	±4	±4
Cyprus	813	±2	±3	±3	±3	±3
Czech Republic	1 178	±2	±2	±3	±3	±3
Denmark	5 320	±1	±1	±1	±1	±1
Ecuador	2 846	±1	±1	±2	±2	±2
Egypt	2 004	±1	±2	±2	±2	±2
El Salvador	634	±2	±3	±4	±4	±4
Estonia	704	±2	±3	±3	±4	±4
Finland	1 303	±2	±2	±2	±3	±3
France	2 412	±1	±2	±2	±2	±2
Georgia	902	±2	±3	±3	±3	±3
Ghana	271	±4	±5	±5	±6	±6
Greece	3 826	±1	±1	±1	±2	±2
Guyana	199	±4	±6	±6	±7	±7

Country	Health and social care workers sample size	Value reported for the country				
		10% or 90%	20% or 80%	30% or 70%	40% or 60%	50%
Honduras	199	±4	±6	±6	±7	±7
Hungary	3 709	±1	±1	±1	±2	±2
Iceland	700	±2	±3	±3	±4	±4
Iraq	601	±2	±3	±4	±4	±4
Ireland	5 718	±1	±1	±1	±1	±1
Italy	17 021	±0	±1	±1	±1	±1
Lao PDR	144	±5	±7	±7	±8	±8
Latvia	806	±2	±3	±3	±3	±3
Lithuania	1 630	±1	±2	±2	±2	±2
Luxembourg	243	±4	±5	±6	±6	±6
Mongolia	583	±2	±3	±4	±4	±4
Myanmar	276	±4	±5	±5	±6	±6
Nepal	266	±4	±5	±6	±6	±6
Netherlands	4 254	±1	±1	±1	±1	±2
Nicaragua	259	±4	±5	±6	±6	±6
Nigeria	125	±5	±7	±8	±9	±9
Norway	1 832	±1	±2	±2	±2	±2
Pakistan	975	±2	±3	±3	±3	±3
Portugal	4 529	±1	±1	±1	±1	±1
Romania	3 989	±1	±1	±1	±2	±2
Serbia	2 239	±1	±2	±2	±2	±2
Sierra Leone	112	±6	±7	±8	±9	±9
Slovakia	2 722	±1	±2	±2	±2	±2
South Africa	2 680	±1	±2	±2	±2	±2
Spain	3 040	±1	±1	±2	±2	±2
Sri Lanka	492	±3	±4	±4	±4	±4
Sweden	19 767	±0	±1	±1	±1	±1
Switzerland	4 235	±1	±1	±1	±1	±2
Tanzania, U.R.	946	±2	±3	±3	±3	±3
Thailand	8 071	±1	±1	±1	±1	±1
Uganda	128	±5	±7	±8	±8	±9
United Arab Emirates	838	±2	±3	±3	±3	±3
United Kingdom	3 566	±1	±1	±2	±2	±2
Uruguay	3 328	±1	±1	±2	±2	±2
Yemen	306	±3	±4	±5	±5	±6
Zambia	114	±6	±7	±8	±9	±9

Note: values of ±0 represent a confidence interval greater than 0 but less than 0.5.

Annex 2

Health and social care workforce data sources and their relative strengths and weaknesses

National statistical agencies and owners of administrative data use a wide range of data sources to produce official workforce statistics. Each source has different objectives, methods and coverage, and are not necessarily designed specifically for the purpose of monitoring the health and social care workforce. It is therefore not surprising that the data from different sources may be different for the same variable. Table A2.1 summarizes the key characteristics, strengths and weaknesses of different types of data source. It highlights how no single data source can answer every question. Ideally, all countries should operate more than one of these methods of data collection, and all should feed into an integrated system of national labour statistics (see Castillo 2011) in line with WHO's National Health Workforce Accounts (NHWA) implementation guidelines (WHO 2018b).

► **Table A2.1. Characteristics of different data sources**

Source	Description	Strengths	Weaknesses
Population census	Data collected from all households in a country or geographical area, about all household members.	Universal coverage makes it highly representative of the population and allows for the study of small population groups and geographical areas.	Costly and infrequent. Collects general information only: does not go into much detail on topics such as labour. One person often answers on behalf of other household members, so may provide inaccurate data.
Household survey (e.g. LFS)	A sample of households is taken from a larger population. The sample includes all persons, whether formally employed, informally employed, unemployed or outside of the labour market.	Allows for more detailed questions on specific topics. Less expensive than a census; can be conducted more frequently to allow the study of shorter-term trends. Includes the self-employed and informal workers.	Data quality and representativeness can be reduced by sampling and non-sampling errors. Tend to be conducted irregularly in LMICs. One person often answers on behalf of other household members, so may provide inaccurate data. Small sample sizes limit the scope for disaggregation.
Establishment census / survey	Data collected from establishments (e.g. health facilities) rather than households.	Good for topics on which employers hold information (e.g. number of employees, working time, income). Less costly than surveying households.	The informal sector, small establishments and self-employed persons tend to be excluded. In some settings, these groups represent an important share of the labour market.
Administrative records	Agencies or institutions (e.g. civil service payroll, professional associations, education institutions) usually keep records of numbers and details of members, staff or students.	Inexpensive because they exist already. Useful in contexts where there are no regular household or establishment surveys. Can have high coverage (e.g. if registration is a requirement for clinical practice).	Not designed for statistical purposes, so may not contain all the desired data, and may not be collected and stored in a format suitable for statistical analysis. Not always updated to reflect outflows (e.g. retirements and deaths).

Source	Description	Strengths	Weaknesses
National accounts	National statistics for the purposes of measuring economic indicators.	Can allow the calculation of relevant measures such as the labour income share. Main components are similar across countries, allowing international comparisons.	Not specific to the health workforce. Excludes unpaid work. Difficult to measure the production of intangible goods.
"Big data"	Records of online activity.	Can provide data on topics such as job searches, vacancies, and skills.	No internationally agreed methods or guidelines. Only covers online activity. Can be difficult to locate and separate the required data.
Other	Estimates can be modelled or imputed based on incomplete data.	Can be useful in contexts without recent, reliable data sources.	Less reliable than high-quality empirical data: heavily dependent on assumptions.

Note: LMICs = low- and middle-income countries.

Source: Adapted from ILO 2017b.

The characteristics described in table A2.1 mean that different data sources are suitable for different purposes. LFS are the only available data source to provide access to microdata, and they are also relatively strong on occupation data coding (Diallo 2019). On the other hand, LFS are a less adequate source for ensuring a reliable count of the health workforce for specific occupations groups because of the LFS sampling methods, and at times small sample sizes in specific categories. To capture all health workers in a country, whether professionally active or just licensed to practice, there is a need for several other administrative records. This is one reason why LFS are rarely used to estimate health worker density (the number of health workers per 10,000 population), and why estimates of health and social care worker density are not shown in this report.

There are many reasons why the estimates from different sources might vary, including:

- Different data sources may use different definitions of which roles should be counted within an occupation.
- Different data collection and analysis methods, such as NHWA, encourages responding countries to count health workers within ISCO codes based on their official roles and responsibilities, whereas in an LFS the individual worker describes the job and only later is it coded into an occupation. The accuracy of the coding will vary according to the quality of the information provided by the respondent and the knowledge and understanding of the coder.
- Different approaches to counting health and social care workers. For example, the OECD questionnaire and NHWA make a distinction between "practising" (i.e. directly providing services), "professionally active" (i.e. either practising or working in other areas such as administration and research), and "licensed to practice" (i.e. qualified but not necessarily in the workforce). They encourage contributing countries to count all three groups separately and whenever possible to use the "professionally active" numbers when making comparisons, but many find it difficult to do so. LFS would be unlikely to capture the "licensed to practice" group.
- Those responsible for contributing data to OECD and NHWA are requested to include both public- and private-sector workers, but in practice it can be more difficult to obtain data from the private sector. The LFS, on the other hand, should not have this limitation. Similarly, the LFS is more likely to capture health workers who are not working within the health and social care sector, especially for occupations which do not require professional registration.
- Different sources may use different estimates of the size of the general population (for example, some might use national estimates based on the most recent population census and others might use global modelled estimates), so that the denominator for the density might not be comparable.
- An LFS is a sample survey, whereas in theory the OECD and NHWA data should represent a complete count of the entire health and social care workforce, based on administrative registers. The LFS estimates will therefore be subject to sampling bias as well as to the biases affecting all data sources caused by, for example, item non-response and coding errors.

- An LFS collects microdata at the level of the individual person, whereas other data sources provide aggregated counts.

The above issues may mean the data source yields either an overestimate or an underestimate of worker density. If two or more issues affect a sample source, one may inflate the estimate and the other may deflate it. The accuracy of LFS estimates is largely dependent on the sample size, whereas the accuracy of an estimate from administrative records is largely dependent on coverage (for example, it may include only public-sector workers) and how well registers are updated and maintained.



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