

National Health Workforce Accounts: A Handbook

Draft for Consultation

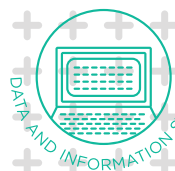
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National Health Workforce Accounts: A Handbook

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+ Table of Content

Abbreviations and acronyms	9
Acknowledgements	10
+ Part I: NHTA – Concept, framework and modules	11
Context	12
Case for action	14
National Health Workforce Accounts: concept and function	15
Benefits of the National Health Workforce Accounts	16
Benefits at national level	16
Input for evidence-based HRH policy and planning	16
Benefits for global monitoring	17
The underpinning framework	18
Development of the National Health Workforce Accounts system	19
National Health Workforce Accounts: a modular approach	20
Contents of the 10 modules	20
The structure of the indicator metadata sheets	23
+ Part II: NHTA – Indicators metadata sheets	25
Modular overview with corresponding dimensions	26
Module classification according to the Labour Market Framework for UHC	28
Module 1: Active health workforce stock	29
1 – 01 Health and social sector employment	30
1 – 02 Health worker density	31
1 – 03 Health worker density at subnational level	32
1 – 04 Health worker density by activity level	33
1 – 05 Activity ratio	34
1 – 06 Distribution by sex	35

1–07	Distribution by age	36
1–08	Median age of health workers	37
1–09	Dependency on foreign health workers	38
1–10	Health worker distribution by facility / institution ownership	39
1–11	Health worker distribution by facility type	40
1–12	Geographical distribution of health workers	41
Module 2: Health workforce in education		43
2–01	Applicants to education and training places ratio	44
2–02	Entrants to education and training places ratio	45
2–03	Entrants to education and training programmes by cadre	46
2–04	Sex distribution of entrants, by cadre, by institutional ownership	47
2–05	Ratio of foreign-born entrants	48
2–06	Entrants to educators ratio	49
2–07	Sex distribution of graduates by cadre, by institutional ownership	50
2–08	Graduation rate by cadre	51
2–09	Education output by cadre, by institutional ownership	52
Module 3: Education regulation		53
3–01	Duration and contents of education	54
3–02	Accreditation mechanisms for education and training institutions and programmes	55
3–03	Accreditation rate for education and training programmes	56
3–04	Social accountability in accreditation	57
3–05	Interprofessional education in accreditation	58
3–06	Continuing professional development	59
3–07	In-service training for health workers	60
Module 4: Education finances		61
4–01	Ratio of expenditure on health workforce education to total public expenditure	62
4–02	Ratio of expenditure on health workforce education to GDP	63
4–03	Ratio of public expenditure on health workforce education and training to total public expenditure on education	64
4–04	Cost per graduate	65
4–05	Cost of educators per graduate	66
4–06	Cost per graduate in medical specialist education programmes	67
4–07	Ratio of expenditure on in-service training to total public expenditure on education and training	68
4–08	Average tuition fee by education and training programme	69
Module 5: Health labour market flows		71
5–01	Graduates starting practice	72
5–02	Entry rate into health labour market	73
5–03	Exit rate from health labour market	74

5–04	Unemployment rate	75
5–05	Vacancy rate	76
5–06	Registration mechanisms for international movements	77
5–07	Immigration rate	78
5–08	Emigration rate	79
5–09	Information on intention to leave	80
5–10	National variance of the stock of active health workers	81
Module 6: Employment characteristics and working conditions		83
6–01	Average number of hours worked	84
6–02	Full-time equivalent (FTE) to headcount ratio	85
6–03	Ratio of part-time health workers	86
6–04	Regulation on working hours	87
6–05	Regulation on minimum wage	88
6–06	Health worker status in employment	89
6–07	Dual practice engagement rate	90
6–08	Occupational safety plans and programmes	91
6–09	Violent attacks on health workers	92
6–10	Measures for prevention of violent attacks	93
6–11	Arrangements supporting work–family balance	94
Module 7: Health workforce spending and remuneration		95
7–01	Expenditure on health workforce relative to total health expenditure	96
7–02	Expenditure on health workforce relative to GDP	97
7–03	Public expenditure on health workforce	98
7–04	Remuneration of health workers	99
7–05	Incentives for addressing shortages and geographical imbalances	100
Module 8: Skill mix composition for models of care		101
8–01	Ratio of nurses to physicians	102
8–02	Percentage of generalist physicians	103
8–03	Specialized birth care workforce	104
8–04	Specialized child care workforce	105
8–05	Specialized surgical workforce	106
8–06	Advanced nursing roles	107
8–07	Policies on skill mix	108
8–08	Prioritization of primary care	109
8–09	Availability of human resources to implement IHR (2005)	110
8–10	Applied epidemiology training programme	111
8–11	Health management certification requirements	112

Module 9: Performance and productivity	113
9–01 Compensated absence rates due to illness	114
9–02 Self-reported absence rates due to illness	115
9–03 Outpatient volume of activity per staff	116
9–04 Inpatient volume of activity per staff	117
9–05 Outpatient doctor consultation duration	118
9–06 Existence of patient experience measurements	119
9–07 Quality care for chronic diseases	120
Module 10: Health workforce governance, information systems and planning	121
10–01 Central HRH function	122
10–02 Private sector oversight	123
10–03 Health worker registries	124
10–04 Health workforce information system functions	125
10–05 Health workforce planning policies	126
10–06 Education plans aligned with national health plan	127
10–07 Models for assessing health-care staffing needs	128
10–08 Self-sufficiency policies as an element of HRH planning standards	129
10–09 WHO Global Code of Practice implementation	130
10–10 Strategy addressing public health workforce	131
+ Annex 1: NHTA as an instrument to address HRH challenges at national level	133
Example 1: Self-sustainability in HRH	134
Example 2: Balanced geographical distribution of the HWT	136
+ Glossary	137
+ References	149

Abbreviations and acronyms

CPD	Continuing professional development
FETP	Field Epidemiology Training Programme
FTE	Full-time equivalent
GDP	gross domestic product
GSHRH	Global Strategy on Human Resources for Health: Workforce 2030
HRH	human resources for health
IHR	International Health Regulations (2005)
ILO	International Labour Organization
ISCO	International Standard Classification of Occupations
MDS	WHO Minimum Data Set for a Health Workforce Registry
NHWA	National Health Workforce Accounts
OECD	Organisation for Economic Co-operation and Development
PHC	primary health care
SDG	United Nations Sustainable Development Goals
UHC	universal health coverage
UN	United Nations
UNESCO	United Nations Educational, Scientific and Cultural Organization
USAID	United States Agency for International Development
WHO	World Health Organization

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Part I

NHWA – Concept,
framework and modules

Context

The 2030 Agenda presents an ambitious multisectoral action plan for Sustainable Development. It renews commitments to global health and gives recognition to UHC as key to achieving all other health targets. SDG 3c sets a target to “substantially increase health financing and the recruitment, development, training and retention of the health workforce in developing countries, especially in least developed countries and small island developing States”.

WHO and its partners developed the Global Strategy on Human Resources for Health: Workforce 2030 (GSHRH) to accelerate progress towards UHC and the SDGs by ensuring equitable access to health workers within strengthened health systems. It has an overall goal of improving health and socioeconomic development outcomes by ensuring universal accessibility, acceptability, coverage and quality of the health workforce through adequate investments to strengthen health systems, and the implementation of effective policies at national, regional and global levels. To achieve this, the GSHRH presents four objectives: 1) optimize the existing workforce; 2) anticipate and plan future workforce requirements; 3) strengthen individual and institutional capacity; and 4) strengthen the data, evidence and knowledge.

The GSHRH puts forward the concept of National Health Workforce Accounts (NHWA) to create a harmonized, integrated approach for annual and timely collection of health workforce information, improve the information architecture and interoperability, and define core indicators in support of strategic workforce planning and global monitoring. This concept was first presented at the Measurement and Accountability for Results in Health Summit (June 2015) and was identified as one of the priority action areas for strengthening country data and accountability systems. It was endorsed as part of the Roadmap for Health Measurement and Accountability. The resulting Health Data Collaborative which aims for improved partner collaboration and joint action that is aligned around country health priorities includes NHWA as one of the working groups for health systems monitoring.

Milestones in the Global Strategy on Human Resources for Health: Workforce 2030 (WHO, 2015)

The global milestones presented in the GSHRH are strongly related to an established HRH monitoring and management system at national level.

Global milestones (by 2020) targeting a higher maturity of national HRH management systems

1. All countries have inclusive institutional mechanisms in place to coordinate an intersectoral health workforce agenda.
2. All countries have a human resources for health unit with responsibility for development and monitoring of policies and plans.
3. All countries have regulatory mechanisms to promote patient safety and adequate oversight of the private sector.
4. All countries have established accreditation mechanisms for health training institutions.
5. All countries are making progress on health workforce registries to track health workforce stock, education, distribution, flows, demand, capacity and remuneration.
6. All countries are making progress on sharing data on human resources for health through national health workforce accounts and submit core indicators to the WHO Secretariat annually.
7. All bilateral and multilateral agencies are strengthening health workforce assessment and information exchange.

Global milestones (by 2030) targeting imbalances within the supply of national HRH

1. All countries are making progress towards halving inequalities in access to a health worker.
2. All countries are making progress towards improving the course completion rates in medical, nursing and allied health professionals training institutions.
3. All countries are making progress towards halving their dependency on foreign-trained health professionals, implementing the WHO Global Code of Practice on the International Recruitment of Health Personnel.
4. As partners in the United Nations Sustainable Development Goals, to reduce barriers in access to health services by working to create, fill and sustain at least 10 million additional full-time jobs in health and social care sectors to address the needs of underserved populations.
5. As partners in the United Nations Sustainable Development Goals, to make progress on Goal 3c to increase health financing and the recruitment, development, training and retention of the health workforce.

Case for action

Trends such as population growth, demographic and epidemiological transition as well as ageing of the health workforce are increasing demand for health and social care which is projected to create 40 million new jobs by 2030, mostly in middle- and high-income countries. Despite the growth in jobs, there will be a projected shortage of 18 million health workers to attain and sustain the health related SDGs primarily in low- and middle-income countries.

Health workforce challenges affect all countries globally and are of a multifaceted nature. Relevant dimensions concern both the governance and management of HRH, and their influence on the availability, accessibility, quality and performance of health services (WHO, 2013). A key challenge is the suboptimal allocation of HRH (McPake, Scott & Edoka, 2014), which can be broken down in terms of:

- geographic areas within and between countries, including urban–rural imbalances and migration;
- public and private sectors, including issues arising from dual practice;
- skill mix: medicine, nursing, and other health workers;
- medical specialties: generalists, and primary, community-based versus specialist care; and
- service delivery settings: primary care, community-based care, outpatients, acute care hospitals, and informal care at home.

Recognition of the suboptimal allocation of health workers across these interdependent dimensions drives the need for information and action on how these distributions can be best addressed in an integrative manner. Additionally, the differences within and between countries may be very large, leaving some populations with inadequate access to health workers whose services they need. To progress towards UHC and the SDGs, key challenges affecting the availability, accessibility, acceptability and quality of the health workforce must be ensured through substantive and sustained long-term strategic investments backed by political will, strong commitments and the implementation of effective policies. To assess the appropriateness and effectiveness of health workforce policies, reliable, harmonized and up-to-date HRH data are needed.

A key challenge at country level is the availability, completeness and quality of HRH data. Substantive investments are needed to obtain quality workforce data that can inform national, evidence-based policy decisions as well as support global efforts towards UHC. Member States need to strengthen or establish health personnel information systems in order to collect, analyse and translate data into effective health workforce policies and plans.

NHWA addresses this information needs taking into consideration existing HRH data collection systems, including:

- (1) The WHO Minimum Data Set for a Health Workforce Registry (MDS) which is a key global tool put forward by WHO in 2015. The MDS serves as the basis for the indicators in Module 1 of the NHWA described below (WHO, 2015a).
- (2) The Joint Questionnaire on Non-Monetary Health Care Statistics – the harmonized data collection by OECD, Eurostat & WHO Regional Office for Europe (2015) – is an established annual global data collection on HRH that aims to provide internationally comparable data to monitor and compare key HRH aspects of health-care systems. Its data categories are also reflected in the indicators of the NHWA.

In addition, the European Union Joint Action on Health Workforce Planning and Forecasting, with various reports and analyses on HRH-related indicators, also served as a basis for indicators in the NHWA system.

This NHWA Handbook contains a vision for the future and is work in progress. It builds on various policy and data collection initiatives and serves as a general guide to describe the NHWA system.

National Health Workforce Accounts: concept and function

The NHWA presented in this Handbook contains a set of 90 core indicators, divided over ten modules, that aim to provide concise information on the health workforce situation and trends of a country. The NHWA contains indicators of relevance to country, regional and global reporting across the spectrum of health workforce priorities. It is primarily based on a comprehensive health labour market framework for UHC.

The purpose of the NHWA is to facilitate the standardization of a health workforce information system for interoperability, as well as to support tracking HRH policy performance towards universal health coverage. The NHWA is built up of core indicators and data characteristics that can be progressively measured in order:

- to generate reliable HRH information and evidence;
- to enable the planning, implementation and monitoring of workforce policies towards UHC;
- to improve the comparability of the health workforce landscape nationally and globally; and
- to enable more sophisticated research to be performed about future trends regarding health workforce, systems and resilience planning.

Benefits of the National Health Workforce Accounts

Benefits at national level

An NHWA will support countries to develop evidence-based policy and planning for their health workforce and better understand and present their health workforce data. The NHWA brings together the various data elements across the health system for HRH, which in turn facilitates the stakeholder engagement needed to support comprehensive health workforce policy and planning.

As health systems are different across countries, and thus countries have different key policy questions with respect to HRH, it is up to Member States to decide which indicators are the most useful for the monitoring and management of their national health workforce. As the NHWA is progressive in nature, some of the benefits for countries will be immediate, while others will become available over the longer term. Once the NHWA system is fully developed and implemented at national level, the main benefits of using NHWA are:

- A better understanding of the health workforce, including its size, characteristics and distribution; from this, countries generate insight into the needs and possibilities for strengthening their health workforce.
- High-quality information on the health workforce that informs evidence-based policy decisions according to country needs.
- A stronger health workforce through identifying significant improvements in health service coverage and health outcomes, especially if causal links with health system characteristics can be established.
- An ability to guide and inform the transformation and scale-up of health workforce education and training in support of UHC.
- Strengthened policies, strategies and plans, through intersectoral policy dialogue among the relevant ministries, that may include ministries of education, health and finance.
- Cross-cutting investments – in all modules of the NHWA – that will foster the demands of data-driven plans and policies, and capacity-building.
- Improved measuring and monitoring of health workforce trends, systematic research on health system developments and resilience planning.

Input for evidence-based HRH policy and planning

The NHWA indicators have been selected with a clear policy relevance in mind. They aim to inform national evidence-based policy decisions, as well as to support global efforts towards UHC (McPake, Scott & Edoka, 2014). In this sense, the NHWA serves as a tool to support labour market analysis, aimed at informing specific policy design, and examining the causal impact of policy change (McPake, Scott & Edoka, 2014; Scott et al., forthcoming).

The NHWA can contribute to finding answers to the following major policy questions related to current HRH challenges and how to optimize planning:

1. Is the current health workforce available, accessible, acceptable and of the appropriate competencies to provide good quality health services?
2. What are the trends in the current health workforce in terms of:
 - a. Production (education and training institution outputs)
 - b. Inflows and outflows
 - c. Deployment trends: skill mix, equity, gender distribution, foreign trained/born health workforce, etc.
3. What are the current gaps, in terms of
 - a. quantities and by cadre?
 - b. equity and skill mix (deployment)?
 - c. productivity and performance?
4. How can the current gaps be partially addressed by improving performance through better allocation of resources, through increasing productivity, through effective retention policies, through effective public-private partnerships, etc.?
5. How can the current gaps be partially addressed by increasing investments in education and production, increasing in-migration, etc.?
6. How can policies and strategies aimed at improving performance and increasing inputs be financed (costing of policies and strategic options, including investments and recurring costs (salaries); negotiations with the Government (ministries of finance, education, labour) as well as negotiations with the private sector)?
7. Can the national production of health workers replace the health worker loss caused by exits?
8. Do financial incentives for health workers to settle in underserved areas lead to a more balanced geographical distribution of the health workforce across the country or region?

The NHWA, however, does not readily measure the current and future need for HRH, which is also necessary for HRH planning. Therefore, countries need to apply mechanisms to collect additional analytical information and evidence to answer their specific HRH policy questions.

Benefits for global monitoring

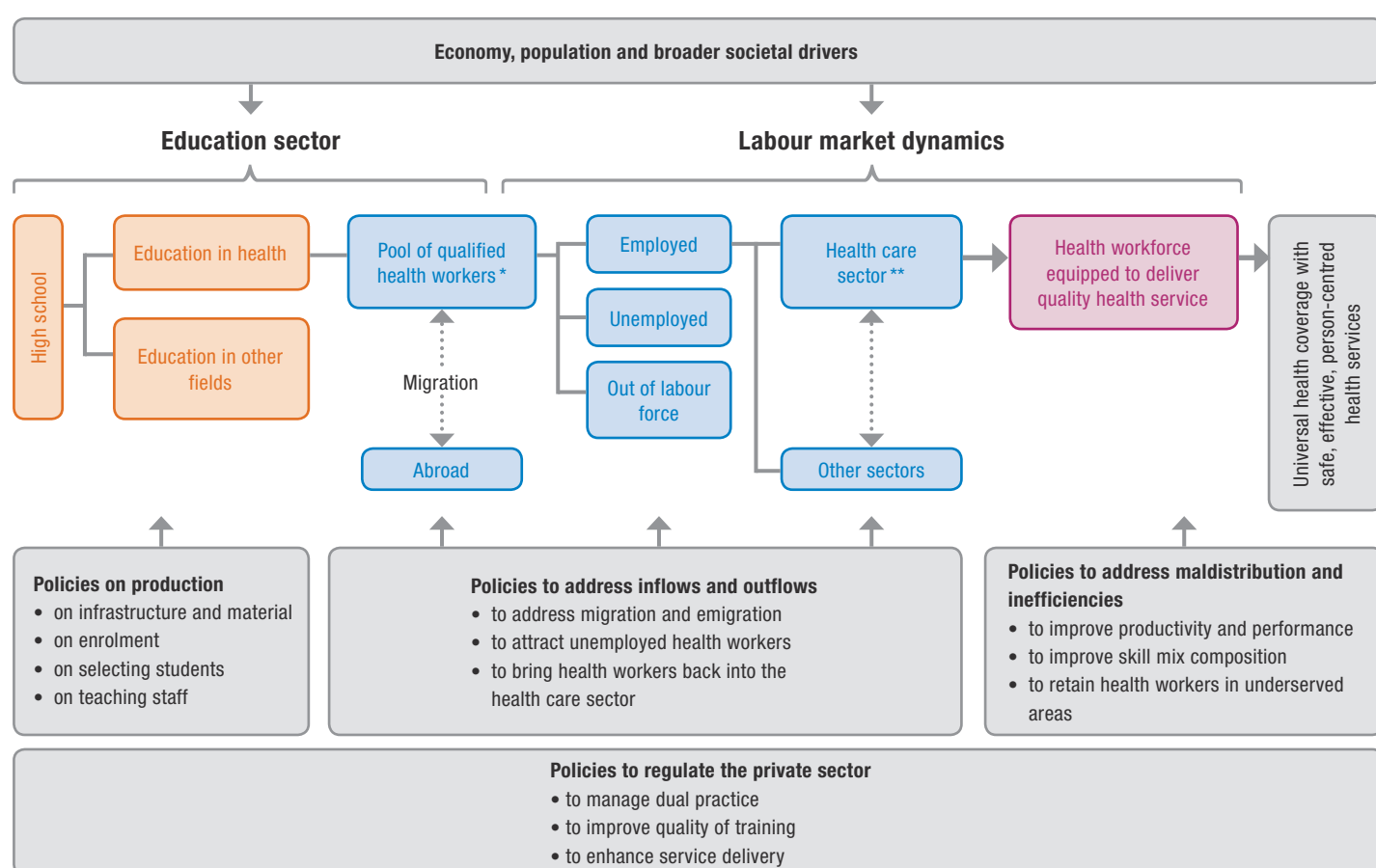
Apart from the benefits at national level, the NHWA supports the comparability of the health workforce landscape globally. Through country reporting, it facilitates capacity-building, knowledge exchange and more sophisticated research about future trends of health workforces within and across systems. The main benefits that NHWA facilitates for global HRH monitoring are:

- a common “status report” as a cross-country data collection effort, in order to encourage countries’ abilities to improve the quality, comprehensiveness and comparability of their data over time; and
- a common platform to foster cross-country support for data collection and health workforce policy reform, and cross-country information exchange and shared experiences.

The underpinning framework

The NHA indicators are collected using existing tools to the greatest possible extent. This approach minimizes the potential for duplication (and hence redundancy) in data collection efforts, while enabling integrated data collection and subsequent analysis and synthesis into policy options. The NHA builds on the WHO Minimum Data Set (WHO, 2015c), the Toolkit for Monitoring and Evaluation of HRH (WHO, 2009), and the experience of the OECD/Eurostat/WHO Regional Office for Europe’s Joint Questionnaire (OECD/Eurostat/WHO Regional Office for Europe, 2015). Moreover, it is aligned with the health labour market (HLM) framework for universal health coverage (Sousa et al., 2013).

Fig. 1: The Health Labour Market Framework for UHC



This framework provides a comprehensive picture of health labour market dynamics; the contribution of four groups of health workforce policies – production; inflows and outflows; distribution and inefficiencies; regulation of the private sector – and the interplay these have in ensuring equitable access to quality services.

The modules of the NHTA are:

- (i) shaped by the policies in the four groupings, and
- (ii) populated by an effective and core set of indicators for defining the necessary measurements.

Development of the National Health Workforce Accounts system

The list of NHTA indicators was developed through a stepwise process that included several phases of consultation on pre-selected indicators.

In October 2015, over 450 indicators were selected from diverse sources of international and subregional literature and filtered down to a set of 255. The filtering process was executed to remove duplicates by eliminating multiple indicators that capture the same underlying concept (data), as well as to embrace all recommended data so that no underlying concepts (data) were excluded.

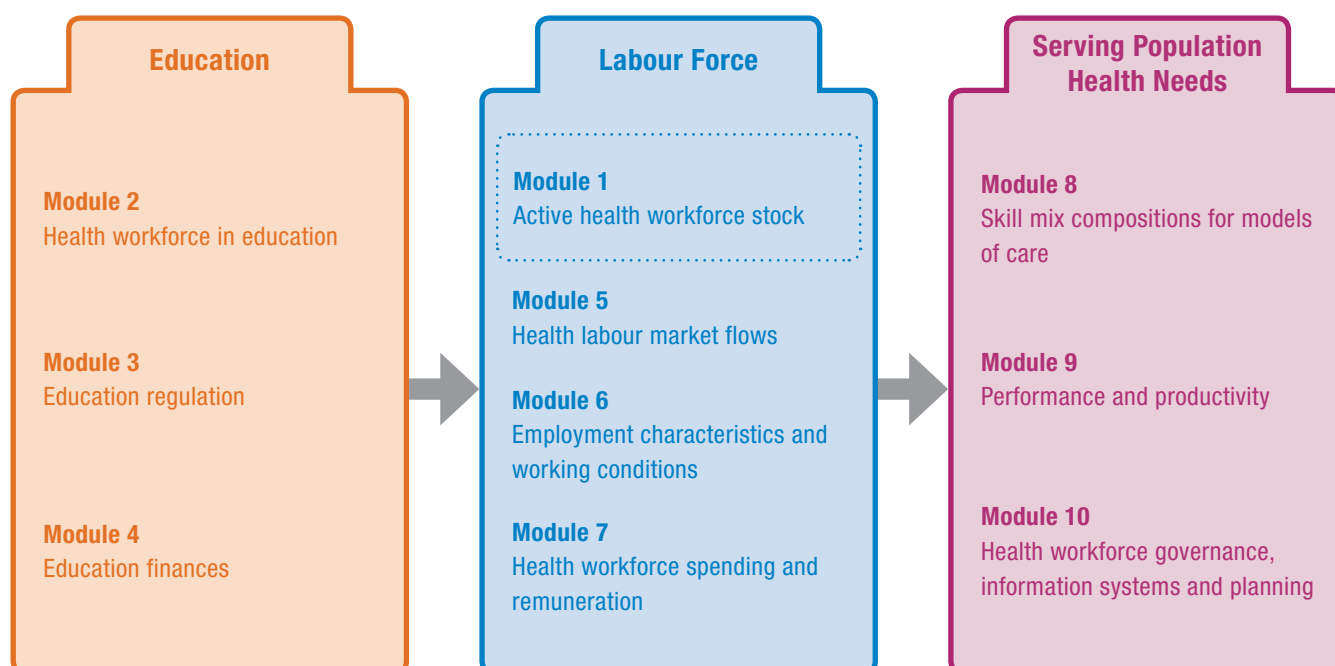
A global consultation (Delphi study) of this list was conducted in November 2015 with the objective of rating the indicators. The consultation comprised over 70 experts from around the world, including deans of faculty, academics, teaching instructors, information systems experts, policy planners, and health professionals. The experts were asked to evaluate the value of these indicators based on criteria of relevance, availability and current utilization in a national context. Experts of the Technical Advisory Group representing various institutions engaged in HRH data monitoring, collection and management, discussed and interpreted the results of this global consultation, among others, in a series of workshops at WHO headquarters. As a result of these discussions, the final list of indicators was defined for inclusion in the NHTA system as presented in this Handbook.

The National Health Workforce Accounts is an ongoing, evolving process. The system will be reviewed and updated on a regular basis as measurement methodologies improve and changing HRH trends require. This Handbook contains the 2016 version of the NHTA, serving as its base-line and ‘version 1.0’.

National Health Workforce Accounts: a modular approach

The NHA – as demonstrated in Fig. 2 – follows a modular structure aligned with the labour market framework. Each of the 10 modules contains a set of indicators with declared policy relevance. These include both numeric and capability indicators that can provide information on regulation and other mechanisms related to the health workforce, and the status of the HRH monitoring and management system. The Compendium of Indicators enables the tracking of health workforce information at the national level and follows the targets defined in the GSHRH. The indicators in the modules are often interconnected, allowing for improved understanding and their use in supporting policy interventions.

Fig. 2: Overview of the 10 modules of the NHA



Contents of the 10 modules

Module 1: Active health workforce stock

This module provides a comprehensive overview of the composition and distribution of the health workforce, primarily based on the standard elements of registries or HRH databases. These indicators are constructed according to the data elements defined in the WHO MDS (WHO, 2015c). Indicators on geographical distribution, distribution by age and by sex, sector ownership and facility types are gathered in Module 1. Regarding policy relevance, this module

helps to explore whether the current workforce is adequate to provide UHC-oriented services. It enables the detection of gaps in certain professions or competencies and mismatches in geographical or sectoral distribution. Understanding HRH composition and distribution enables the planning and implementation of policy interventions on HRH education, retention, or reallocation of resources.

Module 2: Health workforce in education and training

This module aims to map and track health workers in education and training, including the status of pre-entry, new entries and graduation. Providing inputs on volume of production and measuring in-training attrition has clear policy relevance to reorient and tailor HRH education to meet evolving health-care and population needs. Policies on enrolment and student selection can be planned and monitored by using the provided information. Indicators allow for cadre-specific analysis, information on gender equality, public and private institution distribution, and subnational disaggregation for tracking and managing geographical imbalances. Module 2 will help guide and inform the transforming and scaling up of health workforce education and training in support of UHC.

Module 3: Education regulation

Module 3 supports a progressive and transformative people-centred health agenda. Indicators based on education regulation provide information on quality assurance, educational and training requirements, and the responsiveness of education and training systems to evolving population health needs, including interprofessional education for collaborative practice. The indicators have a clear link to the WHO Guidelines on Transforming and Scaling up Health Professionals' Education and Training. Accreditation systems for health workforce education are of key importance, as are regulations for continuous professional development. An indicator on in-service training looks to align health sector training with other educational sector-wide policies and programmes, including technical and vocational education and training within a framework of lifelong learning. These indicators can add information to enhance the quality, consistency and relevance of health workforce education and training, and identify areas of intervention in the regulation or management of public education and training capacities.

Module 4: Education finances

This module seeks to support an effective financing architecture that strengthens intersectoral collaboration between health, education and lifelong learning systems. Indicators in Module 4 include those on the ratio of health education expenditure to total public education expenditure, and to gross domestic product (GDP). Other indicators in this module show information on the cost of education and the cost of educators per graduate. This data can be used to estimate the loss caused by attrition, to support retention policies, advance understanding on targeted investments that can promote health equity and gender equality, as well as to generate evidence on the need and utilization of future investments in health workforce education.

Module 5: Health labour market flows

Entries to and exits from the labour market are measured in Module 5, with particular focus on international mobility. Information about the balance of the health labour market is gathered by tracking vacancies and unemployment. Entries after graduation are also mapped by the indicators of this module, as well as immigration that can support anticipated needs. A better understanding of the magnitude and the drives of emigration can provide a basis for effective retention policies. The integration of this migration module in the 2014–2015 round of the OECD-Eurostat-WHO Joint Questionnaire enables the inclusion of destination country data into the analyses.

Module 6: Employment characteristics and working conditions

Data and indicators on employment characteristics can facilitate the progressive implementation and review of causal and descriptive labour market analyses. The distribution of health workers according to working time and status of employment is essential to understanding health workforce dynamics, although a significant part of the information can be gained through estimates in most countries. Data on laws and policies regulating working hours and minimum wages can serve as input for progressing towards decent work. In line with SDG 5 on gender equality and empowerment of all women and girls, indicators on the share of the activity of women in the economy are included. Issues regarding occupational safety of health workers and work–family balance, often especially poignant for women, are also monitored in this module.

Module 7: Health workforce spending and remuneration

In this module, expenditures on the health workforce and remunerations in the health sector are mapped, including an oversight of the earnings in the private sector where relevant. Additionally, policies providing financial and non-financial incentives to students and health workers are included. Policies and strategies aiming to improve performance and increase input can be planned and financed only when adequate information (or estimation) on current health workforce spending is available. Economic analyses are crucial for budget negotiations with the Government (e.g. ministries of finance, labour, education) as well as for negotiations with private sector representatives.

Module 8: Skill mix composition for models of care

In order to achieve UHC, the availability of skilled health workers is essential in different settings. Skills and competencies need to be determined and allocated with responsiveness to population needs and adaptation to technical progress. Module 8 contains indicators on skill mix composition for developments to improve and integrate patient-centred care by doctors, nurses and allied professionals. The availability of skills for different services is also addressed, with an emphasis on child and birth care, and primary care. Indicators for shared skills

and advanced practice are described, as well as information about the availability of public health-related workforce in line with the International Health Regulations (2005).

Module 9: Performance and productivity

Building on the concepts and indicators proposed in the World Health Report 2006 (WHO, 2006) and the OECD list of indicators (OECD, 2015), Module 9 proposes a set of indicators to measure different dimensions related to health workforce performance. These dimensions cover the availability, productivity, competencies, and quality responsiveness of the workforce. For availability of the health workforce, the module focuses on absenteeism. Health worker productivity, in its most basic way, is referred to in the module by the production of one or many “outputs” (e.g. consultations or hospitalizations), for a given level of health workforce “input(s)”, recognizing that this should be complemented with indicators for competencies and the quality of health services. Therefore, quality care for chronic diseases is described as a key indicator, as well as a set of capability indicators on patient experience with ambulatory care providers. In this way, the responsiveness of the health workforce refers to the fact that people are treated in a way that is responsive to their needs and expectations. This module can be read as a proposal to measure each of the health workforce performance dimensions, acknowledging that more advanced methods will need to be developed over time to interrelate these concepts and account for other factors that influence health worker performance (e.g. the availability of equipment, drugs, and infrastructure among others).

Module 10: Health workforce governance, information systems and planning

This module defines indicators about health workforce governance mechanisms and policy-making, and provides a picture of the status of human resource information systems, data management and their use. Special attention is paid to health workforce planning, which can support effective policy measures to increase health worker production, implement retention and promote self-sustainability. The monitoring and evaluation of immigration policies are also enabled in line with the WHO Global Code of Practice on the International Recruitment of Health Personnel.

The structure of the indicator metadata sheets

The indicators in the NHPA are specified in the metadata sheets put forward in Part II of this Handbook. The indicators are mostly numeric (quantitative), i.e. representing in numbers certain ratios with a numerator and denominator related to an HRH policy field. There are also capability indicators on the existence of certain regulations, processes, etc. reflecting the status of development of the HRH management system of a country. The metadata sheets aim to provide a definition with explanations for the connecting terms and methodology for the calculation. A collection of external links and references supports further understanding, and the most relevant data sources for each indicator are also identified.

The metadata sheets follow the same structure for each indicator and include the current information in the following order:

- Module: number and title of the module to which the indicator belongs
- Indicator number: according to the standard numbering of the NHPA indicator system
- Dimension: the thematic group to which the indicator belongs
- Abbreviated name of the indicator: this name is for general use when referring to the indicator
- Name of the indicator: extended name of the indicator, which provides information about the definition and the level of disaggregation
- Numerator: for the calculation of the indicator, the numerator in the equation (applicable only for numeric indicators)
- Denominator: for the calculation of the indicator, the denominator in the equation (applicable only for numeric indicators)
- Disaggregation of an indicator: the factors by which the value of the indicator can be disaggregated (e.g. by sex, age, facility type); for some indicators more than one disaggregation factor occurs
- Definition: details of the content of the indicator. In cases where the capability indicators consist of more questions, these and the valid variables for the answers are listed here
- Glossary: key terms from the indicator definition for which a detailed explanation can be found in the Glossary of the Handbook
- Data reporting frequency: whether the data should be collected on an annual basis or less frequently
- Potential data sources: relevant data sources at national level that can provide information for the current indicator
- Further information and related links: these represent the key literature, governing body, resolution, or programme publication that was used as a reference or provides further information on the context of the indicator.



Part II

NHWA – Indicators
metadata sheets

Modular overview with corresponding dimensions

1 Active health workforce stock

Sector employment

- Health and social sector employment

Density

- Health worker density
- Health worker density at subnational level

Activity

- Health worker density by activity level
- Activity ratio

Demographic characteristics

- Distribution by sex
- Distribution by age
- Median age of health workers
- Dependency on foreign health workers

Distribution

- Health worker distribution by facility / institution ownership
- Health worker distribution by facility type
- Geographical distribution of health workers

2 Health workforce in education

Pre-entry and entry into education and training

- Applicants to education and training places ratio

Entry into education and training

- Entrants to education and training places ratio
- Entrants to education and training programmes by cadre
- Sex distribution of entrants, by cadre, by institutional ownership
- Ratio of foreign-born entrants
- Entrants to educators ratio

Graduates from education and training programmes

- Sex distribution of graduates by cadre, by institutional ownership
- Graduation rate by cadre
- Education output by cadre, by institutional ownership

3 Education regulation

Accreditation

- Duration and contents of education
- Accreditation mechanisms for education and training institutions and programmes

- Accreditation rate for education and training programmes
- Social accountability in accreditation
- Interprofessional education in accreditation

Lifelong learning

- Continuing professional development
- In-service training for health workers

4 Education finances

Cost of education and training

- Ratio of expenditure on health workforce education to total public expenditure
- Ratio of expenditure on health workforce education to GDP

- Ratio of public expenditure on health workforce education and training to total public expenditure on education
- Cost per graduate
- Cost of educators per graduate

- Cost per graduate in medical specialist education programmes
- Ratio of expenditure on in-service training to total public expenditure on education and training
- Average tuition fee by education and training programme

5 Health labour market flows

Entry into labour market

- Graduates starting practice
- Entry rate into health labour market

Exit from labour market

- Exit rate from health labour market

Labour market imbalances

- Unemployment rate
- Vacancy rate

International mobility

- Registration mechanisms for international movements
- Immigration rate
- Emigration rate
- Information on intention to leave

Balance of flows

- National variance of the stock of active health workers

6 Employment characteristics and working conditions

Working time

- Average number of hours worked
- Full-time equivalent (FTE) to headcount ratio
- Ratio of part-time health workers

Decent work

- Regulation on working hours
- Regulation on minimum wage

Labour market characteristics

- Health worker status in employment
- Dual practice engagement rate

Working conditions

- Occupational safety plans and programmes
- Violent attacks on health workers
- Measures for prevention of violent attacks

Work-family balance

- Arrangements supporting work–family balance

7 Health workforce spending and remuneration

Health workforce expenditure

- Expenditure on health workforce relative to total health expenditure
- Expenditure on health workforce relative to GDP
- Public expenditure on health workforce

Health workforce remuneration

- Remuneration of health workers

HRH incentives

- Incentives for addressing shortages and geographical imbalances

8 Skill mix composition for models of care

Skill distribution

- Ratio of nurses to physicians
- Percentage of generalist physicians
- Specialized birth care workforce
- Specialized child care workforce

- Specialized surgical workforce
- Advanced nursing roles
- Policies on skill mix
- Prioritization of primary care

International Health Regulations (2005) capacity

- Availability of human resources to implement IHR (2005)
- Applied epidemiology training programme

Health management training

- Health management certification requirements

9 Performance and productivity

Absenteeism

- Compensated absence rates due to illness
- Self-reported absence rates due to illness

Productivity

- Outpatient volume of activity per staff
- Inpatient volume of activity per staff

Productivity / Responsiveness

- Outpatient doctor consultation duration

Responsiveness

- Existence of patient experience measurements

Competences/quality

- Quality care for chronic diseases

10 Health workforce governance, information systems and planning

Governance

- Central HRH function
- Private sector oversight

Health workforce information systems

- Health worker registries
- Health workforce information system functions

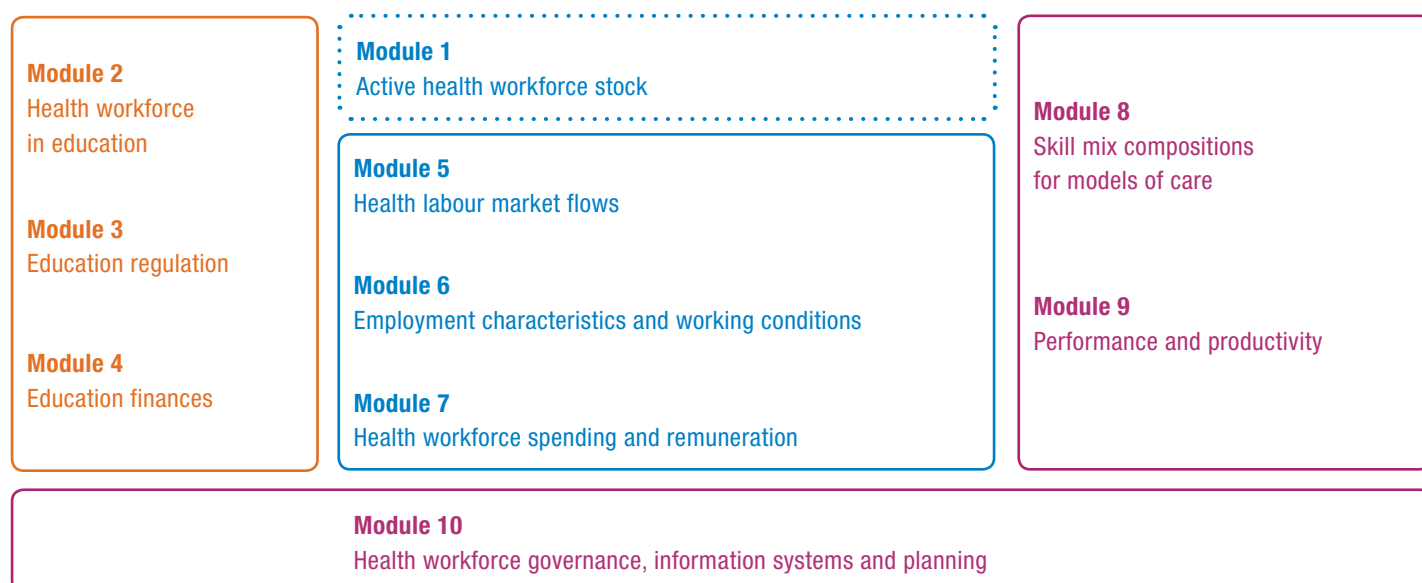
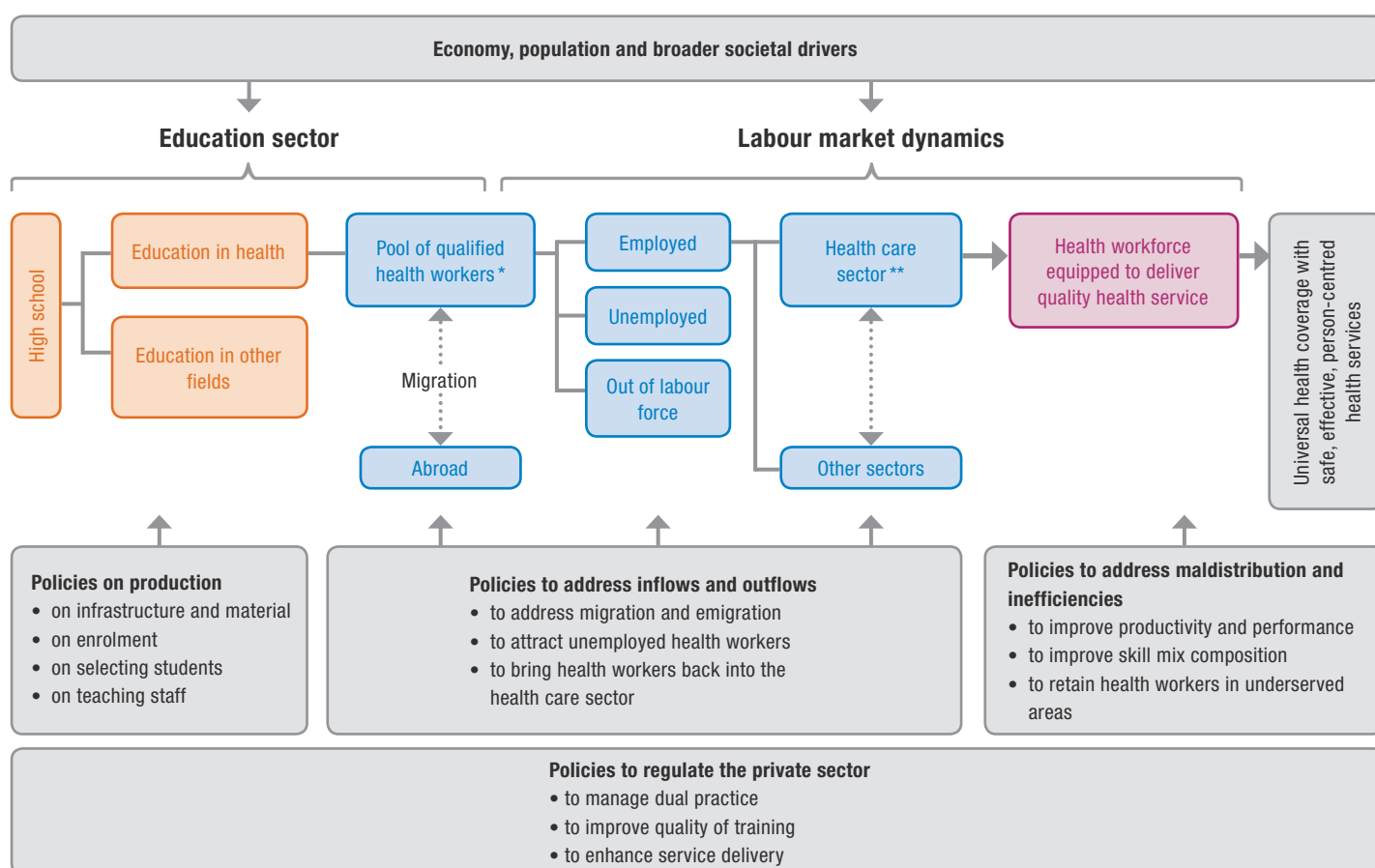
Health workforce policies

- Health workforce planning policies
- Education plans aligned with national health plan
- Models for assessing health-care staffing needs
- Self-sufficiency policies as an element of HRH planning standards
- WHO Global Code of Practice implementation

Compliance with International Health Regulations (2005)

- Strategy addressing public health workforce

Module classification according to the Labour Market Framework for UHC



* Supply of health workers= pool of qualified health workers willing to work in the health-care sector.

** Demand of health workers= public and private institutions that constitute the health-care sector.



Module 1

Active health workforce stock

Sector employment

1–01 Ratio of health and social sector employment to total civilian employment

Density

1–02 Density of active health workers per 1000 population, by cadre

1–03 Density of active health workers per 1000 population by cadre and at subnational level

Activity

1–04 Density of health workers per 1000 population, by cadre, by activity level
(practising, professionally active, licensed to practice)

1–05 Ratio between active and registered health workers, by cadre

Demographic characteristics

1–06 Percentage of male and female health workers in active health workforce, by cadre

1–07 Percentage of active health workers in different age groups, by cadre and by sex

1–08 Overall median age of active health workers and median age in age groups, by cadre and by sex

1–09 Percentage of active foreign-trained health workers by place of birth (domestic/foreign)
and by country of training

Distribution

1–10 Percentage of active health workers employed by type of facility ownership, by cadre

1–11 Percentage of active health workers employed by facility type, by cadre

1–12 Density of active health workers in different regions (by regional typology), by cadre

Indicator name	Ratio of health and social sector employment to total civilian employment
Numerator	Number of persons working in the health or social sector, in headcounts
Denominator	Total number of persons employed, defined in headcounts
Disaggregation	Not applicable
Definition	<p>Ratio of the number of persons working in the health and social sector to the total number of persons employed.</p> <p>People working in the health and social sector include those working in the following Divisions of the International Standard Industrial Classification of all Economic Activities (ISIC) Rev. 4:</p> <ul style="list-style-type: none"> • 86 – Human health activities • 87 – Residential care activities • 88 – Social work activities without accommodation
Glossary	None
Data reporting frequency	Annual
Potential data sources	<ul style="list-style-type: none"> • Health workforce registry or database (preferably national registry with availability on individual data of health workers) • Labour force surveys • Tax registries, insurance or pension fund registries
Further information and related links	<ul style="list-style-type: none"> • OECD (2015). Health statistics: Definitions, sources and methods (https://www.oecd.org/els/health-systems/Table-of-Content-Metadata-OECD-Health-Statistics-2015.pdf). • OECD Annual Labour Force Statistics. Employment by activities and status, for all countries except the United States (http://stats.oecd.org/Index.aspx?DataSetCode=ALFS_EMP#). • OECD (2016). Health workforce policies in OECD countries. Right jobs, right skills, right places (http://www.oecd.org/health/health-systems/health-workforce-policies-in-oecd-countries-9789264239517-en.htm). • WHO (2015). Human resources for health information system: minimum data set for health workforce registry (http://www.who.int/hrh/statistics/minimun_data_set.pdf?ua=1). • United Nations Statistics Division (2008). International standard industrial classification of all economic activities, Rev. 4 (http://unstats.un.org/unsd/publication/seriesM/seriesm_4rev4e.pdf). • OECD (2011). Employment in the health and social sectors. In: Health at a glance: OECD indicators (http://dx.doi.org/10.1787/health_glance-2011-20-en). • WHO (2016). Global strategy on human resources for health: Workforce 2030 (http://www.who.int/hrh/resources/globstrathrh-2030/en/).

Indicator name	Density of active health workers per 1000 population, by cadre
Numerator	Number of active health workers, defined in headcounts
Denominator	Total population
Disaggregation	By cadre
Definition	Density of active health workers per 1000 population, by cadre.
Glossary	<ul style="list-style-type: none"> • Active health workers • Cadres
Data reporting frequency	Annual
Potential data sources	<ul style="list-style-type: none"> • Health workforce registry or database (preferably national registry with availability on individual data of health workers) • Aggregate data from health facilities (routine administrative records, Health Management Information Systems, District Health Information Systems censuses or surveys) • Professional association registers • Population census data
Further information and related links	<ul style="list-style-type: none"> • WHO (2015). Global reference list of 100 core health indicators (http://www.who.int/healthinfo/indicators/2015/chi_2015_113_health_workers.pdf). • OECD, Eurostat, WHO-Europe (2015). Joint data collection on non-monetary health care statistics: Guidelines for completing the OECD/Eurostat/WHO-Europe questionnaire 2015 (http://www.oecd.org/statistics/data-collection/Health%20Data%20-%20Guidelines%20.pdf). • WHO, World Bank, USAID (2009). Handbook on monitoring and evaluation of human resources for health, with special applications for low- and middle-income countries (http://apps.who.int/iris/bitstream/10665/44097/1/9789241547703_eng.pdf). • USAID & CapacityPlus (2015). Human resources for health indicator compendium (http://www.capacityplus.org/files/resources/HRH_Indicator_Compendium.pdf). • WHO (2015). Human resources for health information system: minimum data set for health workforce registry (http://www.who.int/hrh/statistics/minimum_data_set.pdf?ua=1). • PAHO (2011). Handbook for measurement and monitoring indicators of the regional goals for human resources for health: A shared commitment (http://www.paho.org/hq/index.php?option=com_content&view=article&id=5696%3A2011-manual-medicion-monitoreo-indicadores-metas-regionales-recursos-humanos&catid=526%3Ainfo&Itemid=2054&lang=en). • WHO African Health Monitor (2013). Road map for scaling up human resources for health for improved health service delivery in the African Region 2012–2025 (https://www.who.int/sites/default/files/ahm/reports/756/ahm-18-05-road-map-scaling-human-resources-health-2012-2025.pdf). • WHO-Western Pacific (2007). Regional strategy on human resources for health 2006–2015 (http://www.wpro.who.int/publications/PUB_978_92_9061_2445/en/). • WHO (2007). Assessing financing, education, management and policy context for strategic planning of HRH (http://www.who.int/hrh/tools/assessing_financing.pdf).

Indicator name	Density of active health workers per 1000 population by cadre and at subnational level
Numerator	Number of active health workers, defined in headcounts
Denominator	Total population
Disaggregation	By cadre and by subnational level
Definition	<p>Density of active health workers per 1000 population in the given subnational area by cadre.</p> <p>Preferably the location where the health worker works should be taken into account when determining subnational area.</p>
Glossary	<ul style="list-style-type: none"> • Active health workers • Cadres • Subnational level
Data reporting frequency	Annual
Potential data sources	<ul style="list-style-type: none"> • Health workforce registry or database (preferably national registry with availability on individual data of health workers) • Aggregate data from health facilities (routine administrative records, Health Management Information Systems, District Health Information Systems censuses or surveys) • Professional association registers • Population census data • Health facilities database (with location)
Further information and related links	<ul style="list-style-type: none"> • WHO (2015). Global reference list of 100 core health indicators (http://www.who.int/healthinfo/indicators/2015/chi_2015_113_health_workers.pdf). • WHO, World Bank, USAID (2009). Handbook on monitoring and evaluation of human resources for health, with special applications for low- and middle-income countries (http://apps.who.int/iris/bitstream/10665/44097/1/9789241547703_eng.pdf). • WHO (2015). Human resources for health information system: minimum data set for health workforce registry (http://www.who.int/hrh/statistics/minimun_data_set.pdf?ua=1). • USAID & CapacityPlus (2015). Human resources for health indicator compendium (http://www.capacityplus.org/files/resources/HRH_Indicator_Compendium.pdf). • OECD, Eurostat, WHO-Europe (2015). Joint data collection on non-monetary health care statistics: Guidelines for completing the OECD/Eurostat/WHO-Europe questionnaire 2015 (http://www.oecd.org/statistics/data-collection/Health%20Data%20-%20Guidelines%202.pdf). • OECD (2016). Health workforce policies in OECD countries. Right jobs, right skills, right places (http://www.oecd.org/health/health-systems/health-workforce-policies-in-oecd-countries-9789264239517-en.htm).

Abbreviated name

Health worker density by activity level



Dimension: Activity

Indicator name	Density of health workers per 1000 population, by cadre, by activity level (practising, professionally active, licensed to practice)
Numerator	Number of health workers in a specific activity category, defined in headcounts
Denominator	Total population
Disaggregation	By cadre and by activity level
Definition	Density of health workers per 1000 population in the given activity level category (practising, professionally active, licensed to practice).
Glossary	<ul style="list-style-type: none"> • Activity level • Cadres
Data reporting frequency	Annual
Potential data sources	<ul style="list-style-type: none"> • Health workforce registry or database (preferably national registry with availability on individual data of health workers) • Aggregate data from health facilities (routine administrative records, Health Management Information Systems, District Health Information Systems censuses or surveys) • Professional association registers
Further information and related links	OECD, Eurostat, WHO-Europe (2015). Joint data collection on non-monetary health care statistics: Guidelines for completing the OECD/Eurostat/WHO-Europe questionnaire 2015 (http://www.oecd.org/statistics/data-collection/Health%20Data%20-%20Guidelines%202.pdf).

Dimension: Activity

Indicator name	Ratio between active and registered health workers, by cadre
Numerator	Total number of active health workers
Denominator	Total number of registered health workers
Disaggregation	By cadre
Definition	Ratio of active health workers to registered health workers, by cadre
Glossary	<ul style="list-style-type: none"> • Active health workers • Cadres • Registered health workers
Data reporting frequency	Annual
Potential data sources	<ul style="list-style-type: none"> • Health workforce registry or database (preferably national registry with availability on individual data of health workers) • Professional association registers
Further information and related links	<ul style="list-style-type: none"> • WHO (2015). Human resources for health information system: minimum data set for health workforce registry (http://www.who.int/hrh/statistics/minimun_data_set.pdf?ua=1). • OECD, Eurostat, WHO-Europe (2015). Joint data collection on non-monetary health care statistics: Guidelines for completing the OECD/Eurostat/WHO-Europe questionnaire 2015 (http://www.oecd.org/statistics/data-collection/Health%20Data%20-%20Guidelines%202.pdf).

Dimension: Demographic characteristics

Indicator name	Percentage of male and female health workers in active health workforce, by cadre
Numerator	Number of active male health workers and number of active female health workers
Denominator	Total number of active health workers, defined in headcounts
Disaggregation	By cadre
Definition	Percentage of male and female health workers in active health workforce, by cadre
Glossary	<ul style="list-style-type: none"> • Active health workers • Cadres
Data reporting frequency	Annual
Potential data sources	<ul style="list-style-type: none"> • Health workforce registry or database (preferably national registry with availability on individual data of health workers) • Aggregate data from health facilities (routine administrative records, Health Management Information Systems, District Health Information Systems censuses or surveys) • Professional association registers • Population census data
Further information and related links	<ul style="list-style-type: none"> • WHO (2015). Human resources for health information system: minimum data set for health workforce registry (http://www.who.int/hrh/statistics/minimun_data_set.pdf?ua=1). • WHO, World Bank, USAID (2009). Handbook on monitoring and evaluation of human resources for health, with special applications for low- and middle-income countries (http://apps.who.int/iris/bitstream/10665/44097/1/9789241547703_eng.pdf). • USAID & CapacityPlus (2015). Human resources for health indicator compendium (http://www.capacityplus.org/files/resources/HRH_Indicator_Compendium.pdf). • OECD, Eurostat, WHO-Europe (2015). Joint data collection on non-monetary health care statistics: Guidelines for completing the OECD/Eurostat/WHO-Europe questionnaire 2015 (http://www.oecd.org/statistics/data-collection/Health%20Data%20-%20Guidelines%202.pdf). • WHO (2007). Assessing financing, education, management and policy context for strategic planning of HRH (http://www.who.int/hrh/tools/assessing_financing.pdf).

Dimension: Demographic characteristics

Indicator name	Percentage of active health workers in different age groups, by cadre and by sex
Numerator	Number of active health workers in a specific age group
Denominator	Total number of active health workers, defined in headcounts
Disaggregation	By cadre and by sex
Definition	Percentage of active health workers in the given age groups, by cadre and by sex
Glossary	<ul style="list-style-type: none"> • Active health workers • Age groups • Cadres
Data reporting frequency	Annual
Potential data sources	<ul style="list-style-type: none"> • Health workforce registry or database (preferably national registry with availability on individual data of health workers) • Aggregate data from health facilities (routine administrative records, Health Management Information Systems, District Health Information Systems censuses or surveys) • Professional association registers • Population census data
Further information and related links	<ul style="list-style-type: none"> • WHO (2015). Human resources for health information system: minimum data set for health workforce registry (http://www.who.int/hrh/statistics/minimun_data_set.pdf?ua=1). • OECD, Eurostat, WHO-Europe (2015). Joint data collection on non-monetary health care statistics: Guidelines for completing the OECD/Eurostat/WHO-Europe questionnaire 2015 (http://www.oecd.org/statistics/data-collection/Health%20Data%20-%20Guidelines%202.pdf). • WHO, World Bank, USAID (2009). Handbook on monitoring and evaluation of human resources for health, with special applications for low- and middle-income countries (http://apps.who.int/iris/bitstream/10665/44097/1/9789241547703_eng.pdf). • USAID & CapacityPlus (2015). Human resources for health indicator compendium (http://www.capacityplus.org/hrhic/).

Abbreviated name
Median age of health workers



Dimension: Demographic characteristics

Indicator name	Overall median age of active health workers and median age in age groups, by cadre and by sex
Numerator	Not applicable
Denominator	Not applicable
Disaggregation	By cadre and by sex
Definition	<p>Overall median age of active health workers and median age in age groups, by cadre and by sex.</p> <p>Median age of active health workers in the given age groups, by cadre and by sex.</p> <p>Median: the middle value in a series of values arranged from smallest to largest. The indicator can be provided if information on the age of individual health workers is available (generated from birth dates or recorded integer values). The ages are reported in completed years at the moment of the measurement.</p>
Glossary	<ul style="list-style-type: none"> • Active health workers • Age groups • Cadres
Data reporting frequency	Annual
Potential data sources	<ul style="list-style-type: none"> • Health workforce registry or database (preferably national registry with availability on individual data of health workers) • Professional association registers • Sources of health facility data
Further information and related links	<ul style="list-style-type: none"> • WHO (2015). Human resources for health information system: minimum data set for health workforce registry (http://www.who.int/hrh/statistics/minimum_data_set.pdf?ua=1).

Indicator name	Percentage of active foreign-trained health workers by place of birth (domestic/foreign) and by country of training
Numerator	Number of active foreign-trained health workers
Denominator	Total number of active health workers, defined in headcounts
Disaggregation	By cadre, by place of birth (domestic/foreign) and by country of training
Definition	<p>Percentage of active foreign-trained health workers in the active health workforce.</p> <p>For disaggregation by place of birth, health workers to be grouped by domestic-born and foreign-born: percentage of foreign-trained, foreign-born and foreign-trained, domestic-born health workers. Disaggregation by country of training provides information on emigration for other countries.</p>
Glossary	<ul style="list-style-type: none"> • Active health workers • Cadres • Foreign trained health workers
Data reporting frequency	Annual
Potential data sources	<ul style="list-style-type: none"> • Health workforce registry or database (preferably national registry with availability on individual data of health workers) • Professional association registers • Sources of health facility data
Further information and related links	<ul style="list-style-type: none"> • OECD, Eurostat, WHO-Europe (2015). Joint data collection on non-monetary health care statistics: Guidelines for completing the OECD/Eurostat/WHO-Europe questionnaire 2015 (http://www.oecd.org/statistics/data-collection/Health%20Data%20-%20Guidelines%202.pdf). • EU Joint Action on Health Workforce Planning & Forecasting (2016). WP4 Report on health workforce mobility data serving policy objectives (http://healthworkforce.eu/wp-content/uploads/2016/03/160127_WP4_D042-Report-on-Mobility-Data-Final.pdf). • WHO, World Bank, USAID (2009). Handbook on monitoring and evaluation of human resources for health, with special applications for low- and middle-income countries (http://apps.who.int/iris/bitstream/10665/44097/1/9789241547703_eng.pdf). • WHO (2015). Human resources for health information system: minimum data set for health workforce registry (http://www.who.int/hrh/statistics/minimun_data_set.pdf?ua=1). • OECD (2016). Health workforce policies in OECD countries: Right jobs, right skills, right places (http://www.oecd.org/health/health-systems/health-workforce-policies-in-oecd-countries-9789264239517-en.htm).

Health worker distribution by facility / institution ownership

Abbreviated name



Dimension: Distribution

Indicator name	Percentage of active health workers employed by type of facility ownership, by cadre
Numerator	Number of active health workers, defined in headcounts, working in facilities by type of facility ownership
Denominator	Total number of active health workers, defined in headcounts
Disaggregation	By cadre and by facility ownership
Definition	Percentage of active health workers employed in facilities by type of ownership (public, private not-for-profit, private for-profit), by cadre
Glossary	<ul style="list-style-type: none"> • Active health workers • Cadres • Facility/institution ownership type
Data reporting frequency	Annual
Potential data sources	<ul style="list-style-type: none"> • Health workforce registry or database (preferably national registry with availability on individual data of health workers, including data on employment or facility of health service provision) • Aggregate data from health facilities (routine administrative records, Health Management Information Systems, District Health Information Systems censuses or surveys)
Further information and related links	<ul style="list-style-type: none"> • WHO, World Bank, USAID (2009). Handbook on monitoring and evaluation of human resources for health, with special applications for low- and middle-income countries (http://apps.who.int/iris/bitstream/10665/44097/1/9789241547703_eng.pdf). • USAID & CapacityPlus (2015). Human resources for health indicator compendium (http://www.capacityplus.org/files/resources/HRH_Indicator_Compendium.pdf). • WHO (2007). Assessing financing, education, management and policy context for strategic planning of HRH (http://www.who.int/hrh/tools/assessing_financing.pdf). • OECD (2015). Health statistics: Definitions, sources and methods (https://www.oecd.org/els/health-systems/Table-of-Content-Metadata-OECD-Health-Statistics-2015.pdf).

Indicator name	Percentage of active health workers employed by facility type, by cadre
Numerator	Number of active health workers, defined in headcounts, working in a specific facility type
Denominator	Total number of active health workers, defined in headcounts
Disaggregation	By cadre and by facility type
Definition	Percentage of active health workers employed in the given facility type, by cadre
Glossary	<ul style="list-style-type: none"> • Active health workers • Cadres • Facility type
Data reporting frequency	Annual
Potential data sources	<ul style="list-style-type: none"> • Health workforce registry or database (preferably national registry with availability on individual data of health workers, including data on employment or facility of health service provision) • Aggregate data from health facilities (routine administrative records, Health Management Information Systems, District Health Information Systems censuses or surveys)
Further information and related links	<ul style="list-style-type: none"> • WHO (2015). Human resources for health information system: minimum data set for health workforce registry (http://www.who.int/hrh/statistics/minimum_data_set.pdf?ua=1). • OECD, Eurostat, WHO (2011). A system of health accounts (http://www.who.int/health-accounts/methodology/sha2011.pdf). • WHO-Western Pacific (2007). Regional strategy on human resources for health 2006–2015 (http://www.wpro.who.int/publications/PUB_978_92_9061_2445/en/).

Geographical distribution of health workers

Abbreviated name

Dimension: Distribution



Indicator name	Density of active health workers in different regions (by regional typology), by cadre
Numerator	Number of active health workers in different regions (by regional typology)
Denominator	Total number of population in different regions (by regional typology)
Disaggregation	By cadre and by regional typology
Definition	<p>Density of health workers by 1000 population in the given type of region.</p> <p>If this classification is not available, other geographical delimitations can be used (e.g. data from urban and rural, remote, disadvantaged or underserved areas can replace the variables).</p>
Glossary	<ul style="list-style-type: none"> • Active health workers • Cadres • Regional typology
Data reporting frequency	Annual
Potential data sources	<ul style="list-style-type: none"> • Health workforce registry or database (preferably national registry with availability on individual data of health workers) • Aggregate data from health facilities (routine administrative records, Health Management Information Systems, District Health Information Systems censuses or surveys) • Population census data (disaggregated by regional typology) • Facility database (with location, disaggregated by regional typology)
Further information and related links	<ul style="list-style-type: none"> • WHO (2015). Global reference list of 100 core health indicators (http://apps.who.int/iris/bitstream/10665/173589/1/WHO_HIS_HSI_2015.3_eng.pdf). • OECD (2011). OECD regional typology (https://www.oecd.org/gov/regional-policy/OECD_regional_typology_Nov2012.pdf). • OECD (2011). Defining and describing regions. In: OECD Regions at a glance (http://dx.doi.org/10.1787/reg_glance-2011-4-en). • WHO, World Bank, USAID (2009). Handbook on monitoring and evaluation of human resources for health, with special applications for low- and middle-income countries (http://apps.who.int/iris/bitstream/10665/44097/1/9789241547703_eng.pdf). • PAHO (2011). Handbook for measurement and monitoring indicators of the regional goals for human resources for health: A shared commitment (http://www.paho.org/hq/index.php?option=com_content&view=article&id=5696%3A2011-manual-medicion-monitoreo-indicadores-metas-regionales-recursos-humanos&catid=526%3Ainfo&Itemid=2054&lang=en). • WHO African Health Monitor (2013). Road map for scaling up human resources for health for improved health service delivery in the African Region 2012–2025 (https://www.who.int/sites/default/files/ahm/reports/756/ahm-18-05-road-map-scaling-human-resources-health-2012-2025.pdf). • WHO-Western Pacific (2007). Regional strategy on human resources for health 2006–2015 (http://www.wpro.who.int/publications/PUB_978_92_9061_2445/en/).



Module 2

Health workforce in education

Pre-entry and entry into education and training

2-01 Ratio of applicants for education and training programmes to education and training places, by cadre, by sex

Entry into education and training

2-02 Ratio of entrants into education and training programmes to education and training places by cadre, by sex

2-03 Percentage of entrants to education and training programmes by cadre, by institutional ownership

2-04 Percentage of male and female entrants to education and training programmes by cadre, by institutional ownership

2-05 Ratio of foreign-born entrants to education and training programmes, by cadre, by country of birth

2-06 Ratio of entrants to education and training programmes to educators, by cadre

Graduates from education and training programmes

2-07 Percentage of male and female graduates from education and training programmes, by cadre, by institutional ownership

2-08 Graduation rate across education and training programmes, by cadre, by institutional ownership

2-09 Density of graduates from education and training programmes during the last academic year by cadre, by institutional ownership

Indicator name	Ratio of applicants for education and training programmes to education and training places, by cadre, by sex
Numerator	Total number of applicants to education and training places
Denominator	Number of education and training places
Disaggregation	By cadre and by sex
Definition	Ratio of applicants for education and training programmes to education and training places, by cadre, by sex Source: WHO (2013)
Glossary	<ul style="list-style-type: none"> • Applicants • Cadres • Education programmes • Education places
Data reporting frequency	Annual
Potential data sources	<ul style="list-style-type: none"> • Database on education and training statistics • Education and training institutions
Further information and related links	<ul style="list-style-type: none"> • WHO (2013). Transforming and scaling up health professional education and training. Policy brief on monitoring and evaluating the education of health professionals (http://whoeducationguidelines.org/sites/default/files/uploads/whoeduguidelines_PolicyBrief_MnE.pdf). • WHO (2007). Assessing financing, education, management and policy context for strategic planning of HRH (http://www.who.int/hrh/tools/assessing_financing.pdf). • PAHO (2011). Handbook for measurement and monitoring indicators of the regional goals for human resources for health: A shared commitment (http://www.paho.org/hq/index.php?option=com_docman&task=doc_view&gid=10910&Itemid=).

Abbreviated name
Entrants to education and training places ratio



Dimension: Entry into education and training

Indicator name	Ratio of entrants into education and training programmes to education and training places by cadre, by sex
Numerator	Number of entrants into education and training programmes
Denominator	Number of education and training places
Disaggregation	By cadre and by sex
Definition	Ratio of entrants into education and training programmes to education and training places by cadre, by sex
Glossary	<ul style="list-style-type: none"> • Cadres • Education programmes • Education places • Entrants
Data reporting frequency	Annual
Potential data sources	Databases on education and training statistics; education and training institutions
Further information and related links	<ul style="list-style-type: none"> • WHO (2016). Global strategy on human resources for health: Workforce 2030 (http://www.who.int/hrh/resources/globstrathrh-2030/en/). • PAHO (2011). Handbook for measurement and monitoring indicators of the regional goals for human resources for health: A shared commitment (http://www.paho.org/hq/index.php?option=com_content&view=article&id=5696%3A2011-manual-medicion-monitoreo-indicadores-metas-regionales-recursos-humanos&catid=526%3Ainfo&Itemid=2054&lang=en). • USAID & CapacityPlus (2015). Human resources for health indicator compendium (http://www.capacityplus.org/files/resources/HRH_Indicator_Compendium.pdf). • WHO (2007). Assessing financing, education, management and policy context for strategic planning of HRH (http://www.who.int/hrh/tools/assessing_financing.pdf). • WHO African Health Monitor (2013). Road map for scaling up human resources for health for improved health service delivery in the African Region 2012–2025 (https://www.who.int/sites/default/files/ahm/reports/756/ahm-18-05-road-map-scaling-human-resources-health-2012-2025.pdf). • OECD (2015). Joint data collection on non-monetary health care statistics: Guidelines for completing the OECD/Eurostat/WHO-Europe questionnaire 2015: data categories on graduates (https://www.oecd.org/statistics/data-collection/Health%20Data%20-%20Guidelines%202.pdf).

Indicator name	Percentage of entrants to education and training programmes by cadre, by institutional ownership
Numerator	Number of entrants to education and training programmes
Denominator	Total number of entrants to education and training programmes
Disaggregation	By cadre and by institutional ownership
Definition	Percentage of entrants to education and training programmes by cadre, by institutional ownership
Glossary	<ul style="list-style-type: none"> • Cadres • Education places • Entrants • Facility/institution ownership type
Data reporting frequency	Annual
Potential data sources	Databases on education and training statistics (with capacity data at institutional level); education and training institutions
Further information and related links	<ul style="list-style-type: none"> • PAHO (2011). Handbook for measurement and monitoring indicators of the regional goals for human resources for health: A shared commitment (http://www.paho.org/hq/index.php?option=com_content&view=article&id=5696%3A2011-manual-medicion-monitoreo-indicadores-metas-regionales-recursos-humanos&catid=526%3Ainfo&Itemid=2054&lang=en). • USAID & CapacityPlus (2015). Human resources for health indicator compendium (http://www.capacityplus.org/files/resources/HRH_Indicator_Compendium.pdf). • WHO (2007). Assessing financing, education, management and policy context for strategic planning of HRH (http://www.who.int/hrh/tools/assessing_financing.pdf).

Sex distribution of entrants, by cadre, by institutional ownership

Abbreviated name



Dimension: Entry into education and training

Indicator name	Percentage of male and female entrants to education and training programmes by cadre, by institutional ownership
Numerator	Number of male entrants and number of female entrants to education and training programmes
Denominator	Total number of entrants
Disaggregation	By cadre and by institutional ownership
Definition	Percentage of male and female entrants to education and training programmes by cadre, by institutional ownership
Glossary	<ul style="list-style-type: none"> • Cadres • Entrants • Facility/institution ownership type
Data reporting frequency	Annual
Potential data sources	Databases on education and training statistics (with data on graduates at institutional level); education and training institutions
Further information and related links	WHO (2013). Transforming and scaling up health professional education and training. Policy brief on monitoring and evaluating the education of health professionals (http://whoeducationguidelines.org/sites/default/files/uploads/whoeduguidelines_PolicyBrief_MnE.pdf).

Indicator name	Ratio of foreign-born entrants to education and training programmes, by cadre, by country of birth
Numerator	Number of foreign-born entrants to education and training programmes
Denominator	Total number of entrants to education and training programmes
Disaggregation	By cadre and by country of birth
Definition	Ratio of foreign-born entrants to education and training programmes, by cadre, by country of birth
Glossary	<ul style="list-style-type: none"> • Cadres • Education programmes
Data reporting frequency	Annual
Potential data sources	Databases on education and training statistics (with capacity data at institutional level); education and training institutions
Further information and related links	WHO (2013). Transforming and scaling up health professional education and training. Policy brief on monitoring and evaluating the education of health professionals (http://whoeducationguidelines.org/sites/default/files/uploads/whoeduguidelines_PolicyBrief_MnE.pdf).

Dimension: Entry into education and training

Indicator name	Ratio of entrants to education and training programmes to educators, by cadre
Numerator	Number of entrants to education and training programmes
Denominator	Number of educators of education and training programmes
Disaggregation	By cadre
Definition	Ratio of entrants to education and training programmes to educators, by cadre
Glossary	<ul style="list-style-type: none"> • Cadres • Education programmes • Entrants
Data reporting frequency	Annual
Potential data sources	Databases on education statistics; education and training institutions
Further information and related links	<ul style="list-style-type: none"> • WHO (2016). Global strategy on human resources for health: Workforce 2030 (http://www.who.int/hrh/resources/globstrathrh-2030/en/). • PAHO (2011). Handbook for measurement and monitoring indicators of the regional goals for human resources for health: A shared commitment (http://www.paho.org/hq/index.php?option=com_content&view=article&id=5696%3A2011-manual-medicion-monitoreo-indicadores-metas-regionales-recursos-humanos&catid=526%3Ainfo&Itemid=2054&lang=en). • USAID & CapacityPlus (2015). Human resources for health indicator compendium (http://www.capacityplus.org/files/resources/HRH_Indicator_Compendium.pdf). • WHO (2007). Assessing financing, education, management and policy context for strategic planning of HRH (http://www.who.int/hrh/tools/assessing_financing.pdf). • WHO African Health Monitor (2013). Road map for scaling up human resources for health for improved health service delivery in the African Region 2012–2025 (https://www.who.int/sites/default/files/ahm/reports/756/ahm-18-05-road-map-scaling-human-resources-health-2012-2025.pdf). • OECD (2015). Joint data collection on non-monetary health care statistics: Guidelines for completing the OECD/Eurostat/WHO-Europe questionnaire 2015: data categories on graduates (https://www.oecd.org/statistics/data-collection/Health%20Data%20-%20Guidelines%202.pdf).

Dimension: Graduates from education and training programmes

Indicator name	Percentage of male and female graduates from education and training programmes, by cadre, by institutional ownership
Numerator	Number of male graduates and number of female graduates from education and training programmes
Denominator	Total number of graduates
Disaggregation	By cadre and by institutional ownership
Definition	Percentage of male and female graduates from education and training programmes, by cadre, by institutional ownership
Glossary	<ul style="list-style-type: none"> • Cadres • Facility/institution ownership type • Graduates
Data reporting frequency	Annual
Potential data sources	Databases on education and training statistics (with data on graduates at institutional level); education and training institutions
Further information and related links	WHO (2013). Transforming and scaling up health professional education and training. Policy brief on monitoring and evaluating the education of health professionals (http://whoeducationguidelines.org/sites/default/files/uploads/whoeduguidelines_PolicyBrief_MnE.pdf).

Dimension: Graduates from education and training programmes

Indicator name	Graduation rate across education and training programmes, by cadre, by institutional ownership
Numerator	Number of graduates
Denominator	Number of entrants of the same cohort
Disaggregation	By cadre and by institutional ownership
Definition	Graduation rate across education and training programmes, by cadre, by institutional ownership Source: OECD (2015)
Glossary	<ul style="list-style-type: none"> • Cadres • Educational institutions • Facility/institution ownership type
Data reporting frequency	Annual
Potential data sources	Databases on education and training statistics (preferably with data at institutional level); education and training institutions
Further information and related links	<ul style="list-style-type: none"> • OECD (2015). Joint data collection on non-monetary health care statistics: Guidelines for completing the OECD/Eurostat/WHO-Europe questionnaire 2015: data categories on graduates (https://www.oecd.org/statistics/data-collection/Health%20Data%20-%20Guidelines%202.pdf). • WHO (2016). Global strategy on human resources for health: Workforce 2030 (http://www.who.int/hrh/resources/globstrathrh-2030/en/). • PAHO (2011). Handbook for measurement and Monitoring indicators of the regional goals for human resources for health: A shared commitment (http://www.paho.org/hq/index.php?option=com_content&view=article&id=5696%3A2011-manual-medicion-monitoreo-indicadores-metas-regionales-recursos-humanos&catid=526%3Ainfo&Itemid=2054&lang=en). • USAID & CapacityPlus (2015). Human resources for health indicator compendium (http://www.capacityplus.org/files/resources/HRH_Indicator_Compendium.pdf). • WHO (2007). Assessing financing, education, management and policy context for strategic planning of HRH (http://www.who.int/hrh/tools/assessing_financing.pdf). • WHO (2016). Global strategy on human resources for health: Workforce 2030 (http://www.who.int/hrh/resources/globstrathrh-2030/en/).

Dimension: Graduates from education and training programmes

Indicator name	Density of graduates from education and training programmes during the last academic year by cadre, by institutional ownership
Numerator	Number of graduates from education and training programmes in the past academic year
Denominator	Total population
Disaggregation	By cadre, by institutional ownership
Definition	Number of graduates from education and training programmes during the last academic year by cadre, by institutional ownership, per 1000 population Source: WHO (2015)
Glossary	<ul style="list-style-type: none"> • Cadres • Educational institutions • Facility/institution ownership type
Data reporting frequency	Annual
Potential data sources	Databases on education and training statistics (preferably with data at institutional level); education and training institutions
Further information and related links	<ul style="list-style-type: none"> • WHO (2015). Global reference list of 100 core health indicators (http://apps.who.int/iris/bitstream/10665/173589/1/WHO_HIS_HSI_2015.3_eng.pdf?ua=1). • WHO (2016). Global strategy on human resources for health: Workforce 2030 (http://www.who.int/hrh/resources/globstrathrh-2030/en/).



Module 3

Education regulation

Accreditation

- 3-01** Existence of a regulation on the duration and contents of education programmes, by cadre
- 3-02** Existence of accreditation mechanisms used at national level for health education and training institutions and programmes, by cadre
- 3-03** Percentage of education and training programmes that are accredited, by cadre
- 3-04** Existence of social accountability as an element of the accreditation standards used at the national level
- 3-05** Existence of interprofessional education as an element of the accreditation standards used at the national level

Lifelong learning

- 3-06** Existence of national systems for continuing professional development by cadre
- 3-07** Existence of in-service training as an element of national education plans for health workers

Indicator name	Existence of a regulation on the duration and contents of education programmes, by cadre
Numerator	Not applicable
Denominator	Not applicable
Disaggregation	By cadre
Definition	<p>Existence of a regulation on the duration and contents of education programmes by cadre.</p> <p>The indicator for the existence of a regulation on the duration and contents of education programmes consists of the following questions (valid values YES/NO):</p> <p>Does the regulation on the duration and contents of education programmes include:</p> <ol style="list-style-type: none"> 1. Entry requirement to health worker education programmes, concerning age, previous studies, previously acquired competence by study and past professional experience? 2. Total number of hours to be spent on education? 3. List of knowledge, skills and competence to be acquired during education? <p>Source: EU Directive (2013)</p>
Glossary	<ul style="list-style-type: none"> • Cadres • Education programmes
Data reporting frequency	Every three years
Potential data sources	Ministry of Health and Ministry of Higher Education
Further information and related links	<ul style="list-style-type: none"> • Directive 2013/55/EU of the European Parliament and of the Council ...amending Directive 2005/36/EC on the recognition of professional qualifications and Regulation (http://eur-lex.europa.eu/legal-content/EN/ALL/?uri=celex%3A32013L0055). • WHO (2013). Transforming and scaling up health professional education and training. Policy brief on regulation of health professional education (http://whoeducationguidelines.org/sites/default/files/uploads/whoeduguidelines_PolicyBrief_Regulation.pdf). • World Federation of Medical Education (2015). Global standards for quality improvement (http://wfme.org/standards/bme/78-new-version-2012-quality-improvement-in-basic-medical-education-english/file).

Abbreviated name

Accreditation mechanisms for education and training institutions and programmes



Dimension: Accreditation

Indicator name	Existence of accreditation mechanisms used at national level for health education and training institutions and programmes, by cadre
Numerator	Not applicable
Denominator	Not applicable
Disaggregation	By cadre
Definition	<p>Existence of accreditation mechanisms used at national level for health education and training institutions and programmes, by cadre</p> <p>Valid values for answers by cadre:</p> <ol style="list-style-type: none"> Value 0 / "NO" ; Value 2/ "YES": Are there mandatory accreditation mechanisms at national level for education and training institutions and programmes? Value 1 / "Partially": Are there accreditation mechanisms that are used at national level but are not mandatory? <p>Source: WHO (2013)</p>
Glossary	<ul style="list-style-type: none"> • Accreditation • Accreditation standards • Cadres • Educational programmes
Data reporting frequency	Annual
Potential data sources	<ul style="list-style-type: none"> • Ministries of health, higher education or similar • National accreditation authorities • Legitimate bodies, statutory corporations • Professional bodies or associations
Further information and related links	<ul style="list-style-type: none"> • WHO (2013). Transforming and scaling up health professional education and training. Policy brief on accreditation of institutions for health professional education (http://whoeducationguidelines.org/sites/default/files/uploads/whoeduguidelines_PolicyBrief_Accreditation.pdf). • WHO (2016). Global strategy on human resources for health: Workforce 2030 (http://www.who.int/hrh/resources/global_strategyHRH.pdf?ua=1). • WHO-Eastern Mediterranean (2011). Regional standards for accreditation of health professions education (https://www.academia.edu/19747161/2011_Eastern_Mediterranean_Regional_Standards_for_Accreditation_of_Health_Professions_Education). • WHO-WFME Task Force on Accreditation (2004). Accreditation of medical institutions: Report of a technical meeting (http://www.who.int/hrh/documents/WFME_report.pdf). • Commission on Collegiate Nursing Education (2013). Standards for accreditation of baccalaureate and graduate nursing programs (http://www.aacn.nche.edu/ccne-accreditation/Standards-Amended-2013.pdf). • International Pharmaceutical Federation (2014). Quality assurance of pharmacy education: The FIP global framework (http://fip.org/files/fip/PharmacyEducation/Quality_Assurance/QA_Framework_2nd_Edition_online_version.pdf).

Indicator name	Percentage of education and training programmes that are accredited, by cadre
Numerator	Number of accredited education and training programmes
Denominator	Total number of education and training programmes
Disaggregation	By cadre
Definition	Percentage of education and training programmes that are accredited, by cadre Source: WHO (2013)
Glossary	<ul style="list-style-type: none"> • Accreditation • Cadres • Educational programmes
Data reporting frequency	Annual
Potential data sources	<ul style="list-style-type: none"> • Ministries of health, higher education or similar • National accreditation authorities • Professional bodies or associations • Legitimate bodies, statutory corporations
Further information and related links	<ul style="list-style-type: none"> • WHO (2013). Transforming and scaling up health professional education and training. Policy brief on accreditation of institutions for health professional education (http://whoeducationguidelines.org/sites/default/files/uploads/whoeduguidelines_PolicyBrief_Accreditation.pdf). • WHO-WFME Task Force on Accreditation (2004). Accreditation of medical institutions. Report of a technical meeting http://www.who.int/hrh/documents/WFME_report.pdf • World Federation of Medical Education (2015). Global standards for quality improvement (http://wfme.org/standards/bme/78-new-version-2012-quality-improvement-in-basic-medical-education-english/file).

Indicator name	Existence of social accountability as an element of the accreditation standards used at the national level
Numerator	Not applicable
Denominator	Not applicable
Disaggregation	By accreditation mechanism, and by cadre
Definition	<p>Existence of social accountability as an element of the accreditation standards used at the national level.</p> <p>Valid values for answers:</p> <ul style="list-style-type: none"> • Value 0 / “NO”: Value 2/YES: Is social accountability included within accreditation standards used at the national level? • Value 1 / “Partially”: Is social accountability reflected within accreditation standards used at the national level? <p>Source: WHO (1995)</p>
Glossary	<ul style="list-style-type: none"> • Accreditation • Accreditation standards • Education programmes • Social accountability
Data reporting frequency	Every three years
Potential data sources	<ul style="list-style-type: none"> • Ministries of health, higher education or similar • National accreditation authorities • Professional bodies or associations • Legitimate bodies, statutory corporations
Further information and related links	<ul style="list-style-type: none"> • WHO (1995). Defining and measuring the social accountability of medical schools (http://apps.who.int/iris/bitstream/10665/59441/1/WHO_HRH_95.7.pdf). • WHO (2013). Guidelines for transforming and scaling up health professional education and training. Executive summary, the vision for transformative education (http://whoeducationguidelines.org/content/executive-summary). • World Federation of Medical Education (2015). Basic medical education: Global standards for quality improvement (http://wfme.org/standards/bme/78-new-version-2012-quality-improvement-in-basic-medical-education-english/file). • WHO (2016). Global strategy on human resources for health: Workforce 2030 (http://www.who.int/hrh/resources/global_strategyHRH.pdf?ua=1). • WHO-Eastern Mediterranean (2015). Review of medical education in the Eastern Mediterranean Region: challenges, priorities and a framework for action (http://applications.emro.who.int/docs/RC_technical_papers_2015_3_16503_EN.pdf?ua=1%20&ua=1).

Indicator name	Existence of interprofessional education as an element of the accreditation standards used at the national level
Numerator	Not applicable
Denominator	Not applicable
Disaggregation	By accreditation mechanism, and by cadre
Definition	<p>Existence of interprofessional education as an element of the accreditation standards used at the national level</p> <ul style="list-style-type: none"> • Value 0 / “NO” Value 2/ “YES”: Is interprofessional education included within accreditation standards used at the national level? • Value 1 / “Partially”: Is interprofessional education reflected within accreditation standards used at the national level? <p>Source: WHO (2010)</p>
Glossary	<ul style="list-style-type: none"> • Accreditation standards • Education programmes • Interprofessional education
Data reporting frequency	Every three years
Potential data sources	<ul style="list-style-type: none"> • Ministries of health, higher education or similar • National accreditation authorities • Professional bodies or associations • Legitimate bodies, statutory corporations
Further information and related links	<ul style="list-style-type: none"> • WHO (2010). Framework for action on interprofessional education and collaborative practice (http://apps.who.int/iris/bitstream/10665/70185/1/WHO_HRH_HPN_10.3_eng.pdf?ua=1). • WHO (2016). Global strategy on human resources for health: Workforce 2030 (http://www.who.int/hrh/resources/global_strategyHRH.pdf?ua=1). • WHO (2016). Framework on integrated, people-centred health services (http://www.who.int/servicedeliverysafety/areas/people-centred-care/en/).

Abbreviated name
Continuing professional development



Dimension: Lifelong learning

Indicator name	Existence of national systems for continuing professional development by cadre
Numerator	Not applicable
Denominator	Not applicable
Disaggregation	By cadre
Definition	<p>Existence of a national system for continuing professional development (CPD), by cadre</p> <p>Valid values (YES/NO):</p> <ol style="list-style-type: none"> 1. Is there existing CPD? 2. If there is an existing CPD, is it mandatory or voluntary? 3. If it is mandatory, is it linked to a relicensure mechanism? <p>If mandatory and voluntary CPD both exist for a cadre, then “Existing mandatory” should be chosen.</p>
Glossary	<ul style="list-style-type: none"> • Continuing professional development • Continuing professional development (mandatory) • Lifelong learning • Relicensure
Data reporting frequency	Every three years
Potential data sources	<ul style="list-style-type: none"> • Ministries of health, higher education or similar • National accreditation authorities • Professional bodies or associations • Legitimate bodies, statutory corporations
Further information and related links	<ul style="list-style-type: none"> • Directive 2013/55/EU of the European Parliament and of the Council ...amending Directive 2005/36/EC on the recognition of professional qualifications and Regulation (http://eur-lex.europa.eu/legal-content/EN/ALL/?uri=celex%3A32013L0055). • OECD (2016). Health workforce policies in OECD countries: Right jobs, right skills, right places (http://www.oecd.org/health/health-systems/health-workforce-policies-in-oecd-countries-9789264239517-en.htm). • OECD (2016). Health workforce policies in OECD countries (https://www.oecd.org/health/health-systems/Health-workforce-policies-in-oecd-countries-Policy-brief.pdf).

Indicator name	Existence of in-service training as an element of national education plans for health workers
Numerator	Not applicable
Denominator	Not applicable
Disaggregation	Not applicable
Definition	<p>Existence of in-service training as an element of national education plans for health workers, aligned with the national health plan.</p> <p>The indicator consists of the following questions (valid values YES/NO):</p> <ul style="list-style-type: none"> • Is in-service training available as an element of national education plans for health workers aligned with the national health plan? • Is in-service training integrated into larger national education-wide sector policies, strategies and plans? • Does in-service training consider and take into account national policies, strategies and plans for transforming technical and vocational education and training? • Does in-service training consider and take into account national policies, strategies and plans for adult learning and education? <p>In countries where in-service training of health workers is organized at regional level, the answer at national level should be YES if the mechanism exists for more than 50% of the regions.</p> <p>Source: WHO (2013)</p>
Glossary	In-service training
Data reporting frequency	Annual
Potential data sources	Ministry of Health and Ministry of Education
Further information and related links	<ul style="list-style-type: none"> • WHO (2013). Transforming and scaling up health professional education and training. Policy brief on faculty development (http://whoeducationguidelines.org/sites/default/files/uploads/whoeduguidelines_PolicyBrief_FacultyDevelopment.pdf). • UNESCO (2015). Thematic indicators to monitor the Education 2030 Agenda (http://www.uis.unesco.org/Education/Documents/43-indicators-to-monitor-education2030.pdf). • WHO (2013). Transforming and scaling up health professional education and training. Policy brief on faculty development (http://whoeducationguidelines.org/sites/default/files/uploads/whoeduguidelines_PolicyBrief_FacultyDevelopment.pdf).



Module 4

Education finances

Cost of education and training

- 4-01** Ratio of total public expenditure on health workforce education and training to total public expenditure
- 4-02** Ratio of total public expenditure on health workforce education and training to GDP
- 4-03** Ratio of total public expenditure on health workforce education to total public expenditure on education
- 4-04** Cost per graduate in education and training programmes by cadre, by institutional ownership
- 4-05** Cost of educators per graduate by institutional ownership, by cadre
- 4-06** Recurrent costs of specialist medical education per graduate, per specialty
- 4-07** Ratio of total public expenditure on health workforce in-service training to total public expenditure on health workforce education and training
- 4-08** Average tuition fee per graduate by education and training programme, by cadre

Ratio of expenditure on health workforce education to total public expenditure

Dimension: Cost of education and training

Indicator name	Ratio of total public expenditure on health workforce education and training to total public expenditure
Numerator	Total public expenditure on health workforce education and training
Denominator	Total public expenditure
Disaggregation	Not applicable
Definition	Ratio of total public expenditure on health workforce education and training to total public expenditure Source: OECD (2011)
Glossary	Public expenditure
Data reporting frequency	Annual
Potential data sources	<ul style="list-style-type: none"> • Ministry of Finance • Ministry of Education • databases on education statistics • education and training institutions
Further information and related links	<ul style="list-style-type: none"> • OECD (2011). Education at a glance (https://www.oecd.org/education/skills-beyond-school/48631582.pdf). • UNESCO: Education sector financial simulation model (https://www.iipe-poledakar.org/sites/default/files/ckeditor_files/efsm.pdf). • OECD statistics (http://stats.oecd.org/Index.aspx). • WHO (2013). Transforming and scaling up health professional education and training. Policy brief on financing education of health professionals (http://whoeducationguidelines.org/sites/default/files/uploads/whoeduguidelines_PolicyBrief_Financing.pdf).

Abbreviated name

Ratio of expenditure on health workforce education to GDP



Dimension: Cost of education and training

Indicator name	Ratio of total public expenditure on health workforce education and training to GDP
Numerator	Total public expenditure on health workforce education and training
Denominator	Gross domestic product
Disaggregation	Not applicable
Definition	Ratio of total public expenditure on health workforce education and training to GDP Source: OECD (2011)
Glossary	Gross domestic product
Data reporting frequency	Annual
Potential data sources	<ul style="list-style-type: none"> • Ministry of Education • Ministry of Finance • databases on education statistics • education and training institutions
Further information and related links	<ul style="list-style-type: none"> • OECD (2011). Education at a glance (https://www.oecd.org/education/skills-beyond-school/48631582.pdf). • UNESCO: Education sector financial simulation model (https://www.iipe-poledakar.org/sites/default/files/ckeditor_files/efsm.pdf). • OECD Statistics (http://stats.oecd.org/Index.aspx). • WHO (2013). Transforming and scaling up health professional education and training. Policy brief on financing education of health professionals (http://whoeducationguidelines.org/sites/default/files/uploads/whoeduguidelines_PolicyBrief_Financing.pdf).

Ratio of public expenditure on health workforce education and training to total public expenditure on education

Dimension: Cost of education and training

Indicator name	Ratio of total public expenditure on health workforce education to total public expenditure on education
Numerator	Total public expenditure on health workforce education and training
Denominator	Total public expenditure on education
Disaggregation	Not applicable
Definition	Ratio of total public expenditure on health workforce education and training to total public expenditure on education Source: OECD (2011)
Glossary	Public expenditure
Data reporting frequency	Annual
Potential data sources	<ul style="list-style-type: none"> • Ministry of Finance • Ministry of Education • Databases on education statistics • Education and training institutions
Further information and related links	<ul style="list-style-type: none"> • OECD (2011). Education at a glance (https://www.oecd.org/education/skills-beyond-school/48631582.pdf). • UNESCO. Education sector financial simulation model (https://www.iipe-poledakar.org/sites/default/files/ckeditor_files/efsm.pdf). • OECD statistics (http://stats.oecd.org/Index.aspx).

Dimension: Cost of education and training

Indicator name	Cost per graduate in education and training programmes by cadre, by institutional ownership
Numerator	Total recurrent costs of education and training programmes
Denominator	Total number of graduates
Disaggregation	By cadre, and by institutional ownership
Definition	Cost per graduate in public education and training programme by cadre, by institutional ownership Source: OECD (2011)
Glossary	<ul style="list-style-type: none"> • Cadres • Facility/institution ownership type • Graduates • Recurrent costs
Data reporting frequency	Annual
Potential data sources	<ul style="list-style-type: none"> • Ministry of Finance • Ministry of Education • Database on education statistics; education and training institutions
Further information and related links	<ul style="list-style-type: none"> • OECD (2011). Education at a glance (https://www.oecd.org/education/skills-beyond-school/48631582.pdf). • UNESCO. Education sector financial simulation model (http://www.iipe-poledakar.org/sites/default/files/ckeditor_files/efsm.pdf).

Indicator name	Cost of educators per graduate by institutional ownership, by cadre
Numerator	Total recurrent costs of educators
Denominator	Number of graduates
Disaggregation	By cadre and by institutional ownership
Definition	Cost of educators per graduate by institutional ownership, by cadre Source: OECD (2011)
Glossary	<ul style="list-style-type: none"> • Cadres • Facility/institution ownership type • Graduates
Data reporting frequency	Annual
Potential data sources	<ul style="list-style-type: none"> • Ministry of Finance • Ministry of Education • Database on education statistics; education and training institutions;
Further information and related links	<ul style="list-style-type: none"> • OECD (2011). Education at a glance (https://www.oecd.org/education/skills-beyond-school/48631582.pdf). • UNESCO. Education sector financial simulation model (http://www.iipe-poledakar.org/sites/default/files/ckeditor_files/efsm.pdf). • World Bank (2015). The economics of health professional education and careers: insights from a literature review (http://www-wds.worldbank.org/external/default/WDSP/IB/2015/09/18/090224b0830e9369/1_0/Rendered/PDF/The0economics000a0literature0review.pdf).

Cost per graduate in medical specialist education programmes

Abbreviated name



Dimension: Cost of education and training

Indicator name	Recurrent costs of specialist medical education per graduate, per specialty
Numerator	Total public cost of specialist medical education
Denominator	Number of graduates from medical specialist programmes
Disaggregation	By specialty and by institutional ownership
Definition	Recurrent costs on education and training per graduate, by cadre and by institutional ownership. Specialties follow the OECD Joint Questionnaire distribution of medical specialties Source: EU Joint Action (2015)
Glossary	<ul style="list-style-type: none"> • Facility/institution ownership type • Graduate
Data reporting frequency	Annual
Potential data sources	<ul style="list-style-type: none"> • Database on education statistics; education and training institutions • Ministry of Education • Ministry of Finance
Further information and related links	EU Joint Action on Health Workforce Planning & Forecasting (2015). Minimum planning data requirements for health workforce planning (http://healthworkforce.eu/work-package-5/).

Ratio of expenditure on in-service training to total public expenditure on education and training

Dimension: Cost of education and training

Indicator name	Ratio of total public expenditure on health workforce in-service training to total public expenditure on health workforce education and training
Numerator	Total public expenditure on health workforce in-service training
Denominator	Total public expenditure on health workforce education and training
Disaggregation	Not applicable
Definition	Ratio of total public expenditure on health workforce in-service training to total public expenditure on health workforce education and training
Glossary	<ul style="list-style-type: none"> • Graduates • In-service training
Data reporting frequency	Annual
Potential data sources	<ul style="list-style-type: none"> • Ministry of Finance • Ministry of Education • Database on education statistics; education and training institutions
Further information and related links	WHO (2013). Transforming and scaling up health professional education and training. Policy brief on regulation of health professional education (http://whoeducationguidelines.org/sites/default/files/uploads/whoeduguidelines_PolicyBrief_Regulation.pdf).

Abbreviated name

Average tuition fee by education and training programme



Dimension: Cost of education and training

Indicator name	Average tuition fee per graduate by education and training programme, by cadre
Numerator	Total tuition fee by education and training programme
Denominator	Number of graduates by education and training programme
Disaggregation	By cadre, and by graduate
Definition	Average tuition fee of education and training programme, by cadre, by graduate
Glossary	<ul style="list-style-type: none"> • Cadres • Graduates
Data reporting frequency	Annual
Potential data sources	<ul style="list-style-type: none"> • Ministry of Finance • Ministry of Education • Database on education statistics; education and training institutions;
Further information and related links	<p>World Bank (2015). The economics of health professional education and careers: Insights from a literature review http://www-wds.worldbank.org/external/default/WDSPContentServer/WDSP/IB/2015/09/18/090224b0830e9369/1_0/Rendered/PDF/TheOeconomics000a0literature0review.pdf.</p>



Module 5

Health labour market flows

Entry into labour market

5–01 Ratio of previous year graduates who started practice within one year after graduation to total number of previous year graduates, by cadre

5–02 Ratio of newly active health workers to total stock of active health workers, by cadre, by sex

Exit from labour market

5–03 Ratio of active health workers leaving the health sector labour market to total stock of active health workers, by cadre, by sex

Labour market imbalances

5–04 Unemployment rate by cadre, by subnational level

5–05 Percentage of hard-to-fill posts to total number of posts, by cadre and by subnational level

International mobility

5–06 Existence of a formal mechanism for the registration of immigration and emigration

5–07 Ratio of newly active foreign-trained (foreign-born) health workers to total active stock, by cadre, by place of birth (domestic/foreign) and by country of training

5–08 Ratio of active health workers who have left the country to total active health workers, by cadre

5–09 Availability of information on reasons for intention to leave the country

Balance of flows

5–10 Ratio of estimated net inflow into and outflow from the labour market to the total stock of active health workers, by cadre

Indicator name	Ratio of previous year graduates who started practice within one year after graduation to total number of previous year graduates, by cadre
Numerator	Number of previous year graduates who started practice within one year after graduation
Denominator	Number of previous year graduates
Disaggregation	By cadre
Definition	<p>Ratio of graduates who started practice within one year after graduation to total number of previous year graduates, by cadre.</p> <p>For physicians, graduates who started internship/residency training after graduation are also included in those who started practice.</p>
Glossary	<ul style="list-style-type: none"> • Cadres • Graduates
Data reporting frequency	Annual
Potential data sources	<ul style="list-style-type: none"> • Health workforce registry or database (preferably national registry with available data on individual health workers) • Database on graduates of education and training programmes (individual or aggregate data) • Professional association registers
Further information and related links	<p>WHO (2015). Human resources for health information system: minimum data set for health workforce registry (http://www.who.int/hrh/statistics/minimum_data_set.pdf?ua=1).</p>

Abbreviated name
Entry rate into health labour market



Dimension: Entry into labour market

Indicator name	Ratio of newly active health workers to total stock of active health workers, by cadre, by sex
Numerator	Number of newly active health workers (in the given year)
Denominator	Total number of active health workers, defined in headcounts
Disaggregation	By cadre and by sex
Definition	<p>Ratio of newly active health workers to total stock of active health workers, by cadre, by sex</p> <p>Newly active health workers: Health workers who started their activity in the given year in the given profession. In case data are available only on the newly licensed health workers, the total number of licensed health workers should be used as the denominator regardless of availability of data on active health workers. Health workers who started their activity after a temporary leave should be counted.</p>
Glossary	<ul style="list-style-type: none"> • Active health workers • Activity level • Cadres
Data reporting frequency	Annual
Potential data sources	<ul style="list-style-type: none"> • Health workforce registry or database (preferably national registry with availability on individual data of health workers) • Professional association registers • Aggregate data from health facilities (routine administrative records, Health Management Information Systems, District Health Information Systems censuses or surveys)
Further information and related links	<ul style="list-style-type: none"> • WHO, World Bank, USAID (2009). Handbook on monitoring and evaluation of human resources for health, with special applications for low- and middle-income countries (http://apps.who.int/iris/bitstream/10665/44097/1/9789241547703_eng.pdf). • USAID & CapacityPlus (2015). Human resources for health indicator compendium (http://www.capacityplus.org/files/resources/HRH_Indicator_Compendium.pdf). • WHO (2015). Human resources for health information system: minimum data set for health workforce registry (http://www.who.int/hrh/statistics/minimun_data_set.pdf?ua=1).

Indicator name	Ratio of active health workers leaving the health sector labour market to total stock of active health workers, by cadre, by sex
Numerator	Number of health workers who became inactive in the health sector labour market
Denominator	Total number of active health workers, defined in headcounts
Disaggregation	By cadre and by sex
Definition	<p>Ratio of active health workers leaving the health sector labour market to total stock of active health workers, by cadre, by sex</p> <p>Health workers who became inactive should be counted regardless of the reason of inactivity (retirement, death, emigration, temporary leave, unknown reason). In case data on individual health worker activity are not available, estimations can be made on aggregate data.</p>
Glossary	<ul style="list-style-type: none"> • Active health workers • Activity level • Cadres
Data reporting frequency	Annual
Potential data sources	<ul style="list-style-type: none"> • Health workforce registry or database (preferably national registry with availability on individual data of health workers) • Professional association registers • Aggregate data from health facilities (routine administrative records, Health Management Information Systems, District Health Information Systems censuses or surveys) • Data from pension and retirement administration units. • Death records
Further information and related links	<ul style="list-style-type: none"> • WHO (2015). Global reference list of 100 core health indicators. (http://apps.who.int/iris/bitstream/10665/173589/1/WHO_HIS_HSI_2015.3_eng.pdf). • WHO, World Bank, USAID (2009). Handbook on monitoring and evaluation of human resources for health, with special applications for low- and middle-income countries (http://apps.who.int/iris/bitstream/10665/44097/1/9789241547703_eng.pdf). • USAID & CapacityPlus (2015). Human resources for health indicator compendium (http://www.capacityplus.org/files/resources/HRH_Indicator_Compendium.pdf). • WHO (2007). Assessing financing, education, management and policy context for strategic planning of HRH (http://www.who.int/hrh/tools/assessing_financing.pdf). • EU Joint Action on Health Workforce Planning and Forecasting (2015). Handbook on health workforce planning methodologies across EU countries (http://healthworkforce.eu/wp-content/uploads/2015/11/150306_WP5_D052-Handbook-on-HWF-Planning-Methodologies-across-EU-Countries_Release-1_Final-version.pdf). • WHO (2015). Human resources for health information system: minimum data set for health workforce registry (http://www.who.int/hrh/statistics/minimun_data_set.pdf?ua=1). • WHO-Western Pacific ((2007). Regional strategy on human resources for health 2006–2015 (http://www.wpro.who.int/publications/PUB_978_92_9061_2445/en/).

Indicator name	Unemployment rate by cadre, by subnational level
Numerator	Number of health workers currently unemployed
Denominator	Total number of active health workers in the labour force (employed and unemployed)
Disaggregation	By cadre and by subnational level
Definition	Unemployment rate, by cadre and by subnational level
Glossary	<ul style="list-style-type: none"> • Cadres • Employment • Subnational level • Unemployment • Unemployment rate
Data reporting frequency	Annual
Potential data sources	<ul style="list-style-type: none"> • Statistics from employment offices • Labour force surveys • National health accounts surveys • Population censuses
Further information and related links	<ul style="list-style-type: none"> • Eurostat (2016). EU labour force survey – methodology (http://ec.europa.eu/eurostat/statistics-explained/index.php/EU_labour_force_survey_-_methodology#Unemployment). • WHO, World Bank, USAID (2009). Handbook on monitoring and evaluation of human resources for health, with special applications for low- and middle-income countries (http://apps.who.int/iris/bitstream/10665/44097/1/9789241547703_eng.pdf). • USAID & CapacityPlus (2015). Human resources for health indicator compendium (http://www.capacityplus.org/files/resources/HRH_Indicator_Compendium.pdf).

Indicator name	Percentage of hard-to-fill posts to total number of posts, by cadre and by subnational level
Numerator	Number of full-time posts that have not been filled for at least six months and that employers are actively trying to fill
Denominator	Total number of full-time posts (filled and unfilled)
Disaggregation	By cadre and by subnational level
Definition	Percentage of hard-to-fill posts to total number of posts, by cadre and by subnational level
Glossary	<ul style="list-style-type: none"> • Cadres • Job vacancy • Subnational level • Vacancy rate
Data reporting frequency	Annual
Potential data sources	<ul style="list-style-type: none"> • Labour force surveys • Health facility assessments
Further information and related links	<ul style="list-style-type: none"> • WHO-Western Pacific (2007). Regional strategy on human resources for health 2006–2015 (http://www.wpro.who.int/publications/PUB_978_92_9061_2445/en/). • WHO, World Bank, USAID (2009). Handbook on monitoring and evaluation of human resources for health, with special applications for low- and middle-income countries (http://apps.who.int/iris/bitstream/10665/44097/1/9789241547703_eng.pdf).

Registration mechanisms for international movements

Abbreviated name



Dimension: International mobility

Indicator name	Existence of a formal mechanism for the registration of immigration and emigration
Numerator	Not applicable
Denominator	Not applicable
Disaggregation	Not applicable
Definition	<p>The indicator consists of the following questions (Valid values: YES/NO):</p> <ul style="list-style-type: none"> • Is there an existing formal mechanism for the recognition of diplomas obtained abroad? • Are the existing diploma recognition mechanisms applicable to all health professional qualifications? <ul style="list-style-type: none"> • YES: applicable to all health professional qualifications • NO: applicable just to certain qualifications • If there is no mechanism for diploma recognition, this question should be not answered. • Is there an existing mechanism for granting visas for immigrant health workers related to their health-care activity? • Is there an existing mechanism for granting exit visas for health workers related to their health-care activity abroad? • Is there an existing mechanism for granting certificates used for working abroad? <ul style="list-style-type: none"> • Examples for certificates: verification of professional activity, good standing certificate, conformity certificate
Glossary	None
Data reporting frequency	Every three years
Potential data sources	<ul style="list-style-type: none"> • Human Resources for Health Unit • Regulatory bodies on migration • Regulatory bodies on diploma recognition
Further information and related links	<ul style="list-style-type: none"> • USAID & CapacityPlus (2015). Human resources for health indicator compendium (http://www.capacityplus.org/files/resources/HRH_Indicator_Compendium.pdf). • PAHO (2011). Handbook for measurement and monitoring indicators of the regional goals for human resources for health: A shared commitment (http://www.paho.org/hq/index.php?option=com_content&view=article&id=5696%3A2011-manual-medicion-monitoreo-indicadores-metas-regionales-recursos-humanos&catid=526%3Ainfo&Itemid=2054&lang=en). • EU Joint Action on Health Workforce Planning & Forecasting (2016). WP4 Report on health workforce mobility data serving policy objectives (http://healthworkforce.eu/wp-content/uploads/2016/03/160127_WP4_D042-Report-on-Mobility-Data-Final.pdf).

Dimension: International mobility

Indicator name	Ratio of newly active foreign-trained (foreign-born) health workers to total active stock, by cadre, by place of birth (domestic/foreign) and by country of training
Numerator	Number of newly active foreign-trained (foreign-born) health workers
Denominator	Total number of active health workers, defined in headcounts
Disaggregation	By cadre, by place of birth, by country of training
Definition	<p>Ratio of newly active foreign-trained health workers to total active stock, by cadre, disaggregated by place of birth as domestic-born and foreign-born and by country of training. Disaggregation by country of training provides information on emigration for other countries.</p> <p>In case of lack of data on foreign-trained health workers, the number of foreign-born health workers can be used with disaggregation by country of birth.</p> <p>Newly active health workers: Health workers who started their activity in the given year in the given profession.</p>
Glossary	<ul style="list-style-type: none"> • Active health workers • Cadres • Foreign-trained health workers
Data reporting frequency	Annual
Potential data sources	<ul style="list-style-type: none"> • Health workforce registry or database (preferably national registry with availability on individual data of health workers) • Professional association registers • Aggregate data from health facilities (routine administrative records, Health Management Information Systems, District Health Information Systems censuses or surveys) • Data on diploma recognition
Further information and related links	<ul style="list-style-type: none"> • OECD, Eurostat, WHO-Europe (2015). Joint data collection on non-monetary health care statistics: Guidelines for completing the OECD/Eurostat/WHO-Europe questionnaire 2015 (http://www.oecd.org/statistics/data-collection/Health%20Data%20-%20Guidelines%202.pdf). • EU Joint Action on Health Workforce Planning & Forecasting (2016). WP4 Report on health workforce mobility data serving policy objectives (http://healthworkforce.eu/wp-content/uploads/2016/03/160127_WP4_D042-Report-on-Mobility-Data-Final.pdf). • WHO, World Bank, USAID (2009). Handbook on monitoring and evaluation of human resources for health, with special applications for low- and middle-income countries (http://apps.who.int/iris/bitstream/10665/44097/1/9789241547703_eng.pdf). • WHO (2015). Human resources for health information system: minimum data set for health workforce registry (http://www.who.int/hrh/statistics/minimun_data_set.pdf?ua=1). • OECD (2016). Health workforce policies in OECD countries. Right jobs, right skills, right places (http://www.oecd.org/health/health-systems/health-workforce-policies-in-oecd-countries-9789264239517-en.htm). • OECD (2015). Health at a Glance: OECD indicators (http://dx.doi.org/10.1787/health_glance-2015-en).

Indicator name	Ratio of active health workers who have left the country to total active health workers, by cadre
Numerator	Number of active health workers who have left the country in a given year
Denominator	Total number of active health workers, defined in headcounts
Disaggregation	By cadre
Definition	<p>Ratio of estimated number of active health workers who have left the country to total active health workers, by cadre</p> <p>Active health workers who have left the country: The number of active health workers who left the country can be calculated from immigration data of recipient countries (annual inflow data for foreign-trained physicians and nurses in OECD countries are available on the OECD Statistics website). Alternative method is estimation based on intention to leave data including data on applicants for certificates for working abroad. When estimation is based on intention to leave data, it is recommended to link the data with information on changes in activity. Foreign-born domestic graduates who leave the country within one year after graduation should be excluded.</p>
Glossary	<ul style="list-style-type: none"> • Active health workers • Cadres
Data reporting frequency	Annual
Potential data sources	<ul style="list-style-type: none"> • Immigration data in recipient countries (for OECD countries: OECD statistics on health workforce migration) • Data on intention to leave, applicants for certificates for working abroad • Health workforce registry or database of individual health workers
Further information and related links	<ul style="list-style-type: none"> • OECD statistics on health workforce migration (http://stats.oecd.org). • OECD, Eurostat, WHO-Europe (2015). Joint data collection on non-monetary health care statistics: Guidelines for completing the OECD/Eurostat/WHO-Europe questionnaire 2015 (http://www.oecd.org/statistics/data-collection/Health%20Data%20-%20Guidelines%20.pdf). • EU Joint Action on Health Workforce Planning & Forecasting (2016). WP4 Report on health workforce mobility data serving policy objectives (http://healthworkforce.eu/wp-content/uploads/2016/03/160127_WP4_D042-Report-on-Mobility-Data-Final.pdf). • WHO, World Bank, USAID (2009). Handbook on monitoring and evaluation of human resources for health, with special applications for low- and middle-income countries (http://apps.who.int/iris/bitstream/10665/44097/1/9789241547703_eng.pdf). • WHO (2007). Assessing financing, education, management and policy context for strategic planning of HRH (http://www.who.int/hrh/tools/assessing_financing.pdf). • USAID & CapacityPlus (2015). Human resources for health indicator compendium (http://www.capacityplus.org/files/resources/HRH_Indicator_Compendium.pdf). • WHO-Western Pacific (2007). Regional strategy on human resources for health 2006–2015 (http://www.wpro.who.int/publications/PUB_978_92_9061_2445/en/).

Indicator name	Availability of information on reasons for intention to leave the country
Numerator	Not applicable
Denominator	Not applicable
Disaggregation	Not applicable
Definition	<p>The indicator consists of the following questions (Valid values: YES/NO):</p> <ul style="list-style-type: none"> • Is there any regular mechanism to collect information on the reasons for intention to leave the country? • Is there any irregular mechanism to collect information on the reasons for intention to leave the country? <p>Information on reasons for intention to leave can be quantitative and qualitative, regardless of the method of collection.</p> <p>Regular mechanism: The information collection takes place as part of a process (public sector exit surveys, part of the application process for certificates for working abroad etc.) or repeated in regular periods (e.g. annual sample surveys).</p> <p>Irregular mechanism: The information collection is occasional (e.g. carried out in a project or a study), not linked to a process or a regular activity.</p>
Glossary	None
Data reporting frequency	Every three years
Potential data sources	<ul style="list-style-type: none"> • Human Resources for Health Unit • Regulatory bodies on migration • Regulatory bodies on diploma recognition • Universities, research institutions
Further information and related links	<ul style="list-style-type: none"> • WHO (2007). Assessing financing, education, management and policy context for strategic planning of HRH (http://www.who.int/hrh/tools/assessing_financing.pdf). • WHO-Western Pacific ((2007). Regional strategy on human resources for health 2006–2015 (http://www.wpro.who.int/publications/PUB_978_92_9061_2445/en/).

Abbreviated name

National variance of the stock of active health workers



Dimension: Balance of flows

Indicator name	Ratio of estimated net inflow into and outflow from the labour market to the total stock of active health workers, by cadre
Numerator	The difference between the number of active health workers in a given year and the previous year
Denominator	Total number of active health workers in the previous year
Disaggregation	By cadre
Definition	Ratio of estimated net inflow into and outflow from the labour market to the total stock of active health workers, by cadre.
Glossary	<ul style="list-style-type: none"> • Active health workers • Cadres • Net inflow • Net outflow
Data reporting frequency	Annual
Potential data sources	<ul style="list-style-type: none"> • Health workforce registry or database (preferably national registry with availability on individual data of health workers) • Aggregate data from health facilities (routine administrative records, Health Management Information Systems, District Health Information Systems censuses or surveys) • Professional association registers
Further information and related links	WHO (2015). Human resources for health information system: minimum data set for health workforce registry (http://www.who.int/hrh/statistics/minimum_data_set.pdf?ua=1).



Module 6

Employment characteristics and working conditions

Working time

- 6–01** Average annual number of hours worked, by cadre
- 6–02** Percentage of total employment in FTE to total active health workers by facility type
- 6–03** Percentage of part-time health workers among total health workforce, by sex and cadre

Decent work

- 6–04** Existence of a law, policy or regulation regulating working hours
- 6–05** Existence of a law, policy or regulation regulating minimum wage

Labour market characteristics

- 6–06** Percentage of health workers by status in employment to total number of health workers, by cadre, by facility type
- 6–07** Percentage of health workers engaging in dual practice, by cadre and by facility ownership type

Working conditions

- 6–08** Existence of national occupational health and safety plans or programmes
- 6–09** Percentage of health workers who experienced a violent attack in the past 12 months, by type of attack
- 6–10** Existence of governmental measures for the prevention of attacks on health workers

Work–family balance

- 6–11** Existence of a policy or programme regarding the right to parental leave, flexible leave arrangements, childcare support or career break schemes, by sex

Indicator name	Average annual number of hours worked, by cadre
Numerator	Total annual number of working hours
Denominator	Number of active health workers, defined in headcounts
Disaggregation	By cadre and by facility type
Definition	Average annual number of hours worked, per cadre
Glossary	<ul style="list-style-type: none">• Active health workers• Cadres
Data reporting frequency	Annual
Potential data sources	<ul style="list-style-type: none">• Employee surveys• Health facility data
Further information and related links	McPake B, Scott A, Edoka I, editors (2014). Analyzing markets for health workers: Insights from labor and health economics. Directions in Development. Washington (DC): World Bank.

Abbreviated name
Full-time equivalent (FTE) to headcount ratio



Dimension: Working time

Indicator name	Percentage of total employment in FTE to total active health workers by facility type
Numerator	Total number of active health workers on FTE basis
Denominator	Total number of active health workers, defined in headcounts
Disaggregation	By facility type
Definition	Percentage of total employment in FTE to total active health workers, by facility type
Glossary	<ul style="list-style-type: none"> • Active health workers • Facility type • FTE
Data reporting frequency	Annual
Potential data sources	<ul style="list-style-type: none"> • Health workforce registry or database • Labour force surveys
Further information and related links	OECD, Eurostat, WHO-Europe (2015). Joint data collection on non-monetary health care statistics: Guidelines for completing the OECD/Eurostat/WHO-Europe questionnaire 2015 (http://www.oecd.org/statistics/data-collection/Health%20Data%20-%20Guidelines%202.pdf).

Indicator name	Percentage of part-time health workers among total health workforce, by sex and cadre
Numerator	Number of active health workers who do not have a full-time employment contract
Denominator	Total number of active health workers, defined in headcounts
Disaggregation	By sex and by cadre
Definition	Percentage of part-time health workers among total health workforce
Glossary	<ul style="list-style-type: none"> • Active health workers • Cadres • Part-time employment • Sex
Data reporting frequency	Annual
Potential data sources	<ul style="list-style-type: none"> • Facility administrative reports, facility surveys • Health workforce registry or database • Labour force surveys
Further information and related links	<ul style="list-style-type: none"> • OECD (2016). Part-time employment rate (indicator). doi: 10.1787/f2ad596c-en (https://data.oecd.org/emp/part-time-employment-rate.htm).

Indicator name	Existence of a law, policy or regulation regulating working hours
Numerator	Not applicable
Denominator	Not applicable
Disaggregation	Not applicable
Definition	<p>Existence of a law, policy or regulation regulating working hours</p> <p>Capability indicators: (Valid values: YES/NO)</p> <p>Has the Government and its competent authorities regulated:</p> <ol style="list-style-type: none"> 1. the maximum number of working days allowed per week? 2. the premium for night work (as a percentage of hourly pay)? 3. the premium for work on a weekly rest day (as a percentage of hourly pay)? 4. the premium for overtime work (as a percentage of hourly pay)? 5. whether there are restrictions on night work? 6. whether non-pregnant and non-nursing women can work the same night hours as men? 7. whether there are restrictions on weekly holiday work? 8. whether there are restrictions on overtime work? 9. the average paid annual leave for workers with 1 year of tenure? 10. the average paid annual leave for workers with 5 years of tenure? 11. the average paid annual leave for workers with 10 years of tenure? <p>Source: adapted from World Bank Group (2016).</p>
Glossary	None
Data reporting frequency	Every three years
Potential data sources	Employment laws, policies and regulations
Further information and related links	World Bank Group (2016). Labor Market Regulation Methodology (http://www.doingbusiness.org/methodology/labor-market-regulation).

Indicator name	Existence of a law, policy or regulation regulating minimum wage
Numerator	Not applicable
Denominator	Not applicable
Disaggregation	By cadre and by sex
Definition	Existence of a law, policy or regulation regulating minimum wage Capability indicator: (Valid value: YES/NO): Has national minimum wage legislation been established for health workers? Source: ILO (2008)
Glossary	Sex
Data reporting frequency	Every three years
Potential data sources	Employment laws, policies and regulations
Further information and related links	ILO (2008). Measurement of decent work based on guidance received at the Tripartite Meeting of Experts on the Measurement of Decent Work (September 2008) (http://www.ilo.org/wcmsp5/groups/public/---dgreports/---integration/documents/meetingdocument/wcms_115402.pdf).

Abbreviated name
Health worker status in employment



Dimension: Labour market characteristics

Indicator name	Percentage of health workers by status in employment to total number of health workers, by cadre, by facility type
Numerator	Number of health workers by status in employment
Denominator	Total number of active health workers, defined in headcounts
Disaggregation	By cadre and by facility type
Definition	Percentage of health workers by status in employment to total number of health workers, by cadre, by facility type
Glossary	<ul style="list-style-type: none"> • Cadres • Facility type • Status in employment
Data reporting frequency	Annual
Potential data sources	<ul style="list-style-type: none"> • Facility administrative records, facility surveys • Health worker registries (if type of employment is registered)
Further information and related links	WHO, World Bank, USAID (2009). Handbook on monitoring and evaluation of human resources for health with special applications for low- and middle-income countries (http://apps.who.int/iris/bitstream/10665/44097/1/9789241547703_eng.pdf).

Indicator name	Percentage of health workers engaging in dual practice, by cadre and by facility ownership type
Numerator	Total number of health workers who have a primary job in a health facility, and take a second job in another health facility or private practice
Denominator	Total number of active health workers, defined in headcounts
Disaggregation	By cadre and by facility ownership type
Definition	Percentage of health workers engaging in dual practice, by cadre and by facility ownership type
Glossary	<ul style="list-style-type: none"> • Active health workers • Cadres • Facility/institution ownership type
Data reporting frequency	Annual
Potential data sources	<ul style="list-style-type: none"> • Health worker registries (with data on individual health workers, where all the workplaces are registered) • Employee surveys
Further information and related links	<ul style="list-style-type: none"> • WHO, World Bank, USAID (2009). Handbook on monitoring and evaluation of human resources for health with special applications for low- and middle-income countries (http://apps.who.int/iris/bitstream/10665/44097/1/9789241547703_eng.pdf). • USAID (2015). Human resources for health indicators reference sheets (https://www.hfgproject.org/wp-content/uploads/2014/12/HRH-Indicators-Reference-Sheets-Final-2015.pdf).

Abbreviated name
Occupational safety plans and programmes



Dimension: Working conditions

Indicator name	Existence of national occupational health and safety plans or programmes
Numerator	Not applicable
Denominator	Not applicable
Disaggregation	Not applicable
Definition	<p>Existence of national occupational health and safety plans or programmes</p> <p>Capability indicators for existence of national occupational health and safety plans or programmes (Valid value: YES/NO):</p> <p>Has the Government and its competent authorities introduced:</p> <ol style="list-style-type: none"> 1.national occupational health and safety plans, policies or programmes? 2.policies to cover the use of up-to-date and repaired equipment? 3.policies to cover clean working environments? 4.policies to cover structurally safe work areas? 5.policies to cover safety training? 6.policies to cover the provision of health services and health insurance coverage for health workers? <p>Source: adapted from PAHO (2011)</p>
Glossary	Occupational health and safety
Data reporting frequency	Every three years
Potential data sources	<ul style="list-style-type: none"> • Department of Health • Health regions • Labour legislation • Unions
Further information and related links	<ul style="list-style-type: none"> • PAHO (2011). Handbook for measurement and monitoring indicators of the regional goals for human resources for health: A shared commitment (http://www.paho.org/hq/index.php?option=com_content&view=article&id=5696%3A2011-manual-medicin-monitoreo-indicadores-metas-regionales-recursos-humanos&catid=526%3Ainfo&Itemid=2054&lang=en). • OECD, Eurostat, WHO (2011). A system of health accounts (http://www.who.int/health-accounts/methodology/sha2011.pdf). • WHO-Western Pacific (2007). Regional strategy on human resources for health 2006–2015 (http://www.wpro.who.int/publications/PUB_978_92_9061_2445/en/). • WHO (2016). Global strategy on human resources for health: Workforce 2030 (http://www.who.int/hrh/resources/globstrathrh-2030/en/).

Indicator name	Percentage of health workers who experienced a violent attack in the past 12 months, by type of attack
Numerator	Number of health workers who experienced a violent attack in the past 12 months
Denominator	Total number of active health workers, defined in headcounts
Disaggregation	By type of attack (i.e. physical or psychological)
Definition	<p>Number of health workers who experienced a physical or psychological attack in the past 12 months, by type of attack:</p> <ul style="list-style-type: none"> Physical attacks: intentional use of physical force that harms another person physically, sexually or psychologically. Psychological attacks: intentional use of mental force, including threat of physical force, that can result in harm to physical, mental, spiritual, moral or social development. Includes verbal abuse, bullying/mobbing, harassment, and threats.
Glossary	Active health workers
Data reporting frequency	Annual
Potential data sources	<ul style="list-style-type: none"> ILO/ICN/WHO/PSI Workplace Violence in the Health Sector: Survey Questionnaire Labour force surveys Police records
Further information and related links	<ul style="list-style-type: none"> ILO/ICN/WHO/PSI (2003). Workplace violence in the health sector: Country case studies research instruments. Survey questionnaire (English) (http://who.int/violence_injury_prevention/violence/interpersonal/en/WVquestionnaire.pdf?ua=1&ua=1). Resolution WHA65.20. WHO's response, and role as the health cluster lead, in meeting the growing demands of health in humanitarian emergencies. In: Sixty-fifth World Health Assembly, Geneva, 21-26 May 2012:2. Resolutions and decisions, annexes. Geneva: World Health Organization; 2012 (WHA65/2012/REC/1;http://apps.who.int/gb/ebwha/pdf_files/WHA65/A65_DIV3-en.pdf#page=10, accessed 30 April 2016).

Abbreviated name

Measures for prevention of violent attacks



Dimension: Working conditions

Indicator name	Existence of governmental measures for the prevention of attacks on health workers
Numerator	Not applicable
Denominator	Not applicable
Disaggregation	Not applicable
Definition	<p>Measures for prevention of violent attacks.</p> <p>Capability indicators for governmental measures for the prevention of incidents where staff are abused, threatened or assaulted in circumstances related to their work, including commuting to and from work, involving an explicit or implicit challenge to their safety, well-being or health (Valid values: YES/NO/PARTIALLY):</p> <p>Has the government and its competent authorities:</p> <ol style="list-style-type: none"> 1. made the reduction/elimination of workplace violence in the health sector an essential part of national/regional/local policies and plans on occupational health and safety, human rights protection, economic sustainability, enterprise development and gender equality? 2. promoted the participation of all parties concerned with such policies and plans? 3. revised labour law and other legislation and introduced special legislation, where necessary? 4. ensured the enforcement of such legislation? 5. encouraged the inclusion of provision to reduce and eliminate workplace violence in national, 6.sectoral and workplace/enterprise agreements? 6. encouraged the development of policies and plans at the workplace to combat workplace violence? 7. launched awareness campaigns on the risks of workplace violence? 8. requested the collection of information and statistical data on the spread, causes and consequences of workplace violence? 9. coordinated the efforts of the various parties concerned? <p>Source: adapted from ILO/ICN/WHO/PSI (2002).</p>
Glossary	None
Data reporting frequency	Every three years
Potential data sources	Government or legislative records
Further information and related links	ILO/ICN/WHO/PSI (2002). Framework guidelines for addressing workplace violence in the health sector (http://who.int/violence_injury_prevention/violence/interpersonal/en/WVguidelinesEN.pdf?ua=1&ua=1).

Indicator name	Existence of a policy or programme regarding the right to parental leave, flexible leave arrangements, childcare support or career break schemes, by sex
Numerator	Not applicable
Denominator	Not applicable
Disaggregation	Not applicable
Definition	<p>Existence of a policy or programme regarding the right to parental leave, flexible leave arrangements, childcare support or career break schemes, by sex</p> <p>Capability indicators for existence of policies or programmes regarding the right to parental leave, flexible leave arrangements, childcare support or career break schemes, by sex (Valid values: YES/NO):</p> <p>Is there a national policy or programme regarding:</p> <ol style="list-style-type: none"> 1. maternity leave or pregnancy leave? 2. paternity leave? 3. parental leave? 4. childcare support? 5. leave entitlements to care for sick family members?
Glossary	<ul style="list-style-type: none"> • Maternity leave • Paternity leave • Parental leave • Childcare support • Leave entitlements to care for sick family members • Sex
Data reporting frequency	Every three years
Potential data sources	Employment laws, policies and regulations
Further information and related links	OECD Family Database (http://www.oecd.org/els/family/database.htm#structure).



Module 7

Health workforce spending and remuneration

Health workforce expenditure

- 7–01** Total expenditure on health workforce as a percentage of total (or current) health expenditure
- 7–02** Total expenditure on health workforce as a percentage of gross domestic product (GDP)
- 7–03** Total public expenditure on health workforce as a percentage of total public health expenditure, by cost category

Health workforce remuneration

- 7–04** Average remuneration of health workers, by cadre, by facility ownership type, by status in employment

HRH incentives

- 7–05** Existence of national policies, scholarships and grants providing financial and non-financial benefits, by cadre:
- to students if they enrol in an educational programme for a health profession in which there is a shortage;
 - in order to recruit and retain health workers in geographical areas with imbalances and inequitable distribution of health workers.

Indicator name	Total expenditure on health workforce as a percentage of total (or current) health expenditure
Numerator	Total expenditure on health workforce
Denominator	Total (or current) health expenditure
Disaggregation	Not applicable
Definition	Total expenditure on health workforce as a percentage of total (or current) health expenditure
Glossary	<ul style="list-style-type: none"> • Current expenditure on health care • Total expenditure on health workforce • Total health expenditure
Data reporting frequency	Annual
Potential data sources	Payroll data; income tax data; general labour force surveys; specific health worker surveys
Further information and related links	<ul style="list-style-type: none"> • OECD, Eurostat, WHO. Joint Health Accounts Questionnaire. • OECD, WHO, Eurostat (2011). Classification of factors of health care provision (ICHA-FP). In: A system of health accounts: 2011 Edition (http://dx.doi.org/10.1787/9789264116016-11-en). • OECD (2011). Health at a glance: OECD indicators (http://www.oecd.org/els/health-systems/49105858.pdf). • WHO (2007). Assessing financing, education, management and policy context for strategic planning of HRH (http://www.who.int/hrh/tools/assessing_financing.pdf).

Abbreviated name
Expenditure on health workforce relative to GDP



Dimension: Health workforce expenditure

Indicator name	Total expenditure on health workforce as a percentage of gross domestic product (GDP)
Numerator	Total expenditure on health workforce
Denominator	GDP
Disaggregation	Not applicable
Definition	Total expenditure on health workforce as a percentage of GDP
Glossary	<ul style="list-style-type: none"> • Total expenditure on health workforce • Gross domestic product
Data reporting frequency	Annual
Potential data sources	Payroll data; income tax data; general labour force surveys; specific health worker surveys
Further information and related links	<ul style="list-style-type: none"> • OECD, Eurostat, WHO. Joint Health Accounts Questionnaire. • OECD, WHO, Eurostat (2011). Classification of factors of health care provision (ICHA-FP). In: A system of health accounts: 2011 Edition (http://dx.doi.org/10.1787/9789264116016-11-en). • OECD (2011). Health at a glance: OECD indicators (http://www.oecd.org/els/health-systems/49105858.pdf). • WHO (2007). Assessing financing, education, management and policy context for strategic planning of HRH (http://www.who.int/hrh/tools/assessing_financing.pdf).

Indicator name	Total public expenditure on health workforce as a percentage of total public health expenditure, by cost category
Numerator	Total public expenditure on health workforce
Denominator	Total public health expenditure
Disaggregation	By cost category
Definition	Total public expenditure on health workforce as a percentage of total public health expenditure, by cost category
Glossary	<ul style="list-style-type: none"> • Total public health expenditure • Cost category
Data reporting frequency	Annual
Potential data sources	Payroll data; income tax data; general labour force surveys; specific health worker surveys
Further information and related links	<ul style="list-style-type: none"> • OECD, Eurostat, WHO. Joint Health Accounts Questionnaire. • OECD (2011). Health at a glance: OECD indicators (http://www.oecd.org/els/health-systems/49105858.pdf). • OECD, WHO, Eurostat (2011). Classification of factors of health care provision (ICHA-FP). In: A system of health accounts: 2011 Edition (http://dx.doi.org/10.1787/9789264116016-11-en).

Abbreviated name
Remuneration of health workers



Dimension: Health workforce remuneration

Indicator name	Average remuneration of health workers, by cadre, by facility ownership type, by status in employment
Numerator	Total remuneration of active health workers
Denominator	Number of active health workers, defined in headcounts
Disaggregation	By cadre, by facility ownership type, and by status in employment (where relevant)
Definition	Average remuneration of health workers per year (in national currency), by cadre, by facility ownership type, by contractual status
Glossary	<ul style="list-style-type: none"> • Remuneration • Status in employment
Data reporting frequency	Annual
Potential data sources	<ul style="list-style-type: none"> • Wage and salaried workers (employees): payroll data; income tax data; general labour force surveys; specific health worker surveys. • Self-employed workers: public/social health insurance; income tax data; specific health worker surveys.
Further information and related links	<ul style="list-style-type: none"> • OECD, Eurostat, WHO. Joint Health Accounts Questionnaire. • OECD (2011). Health at a glance. 2011 OECD indicators (http://www.oecd.org/els/health-systems/49105858.pdf). • WHO (2007). Assessing financing, education, management and policy context for strategic planning of HRH (http://www.who.int/hrh/tools/assessing_financing.pdf).

Dimension: HRH incentives

Indicator name	<p>Existence of national policies, scholarships and grants providing financial and non-financial benefits, by cadre:</p> <ul style="list-style-type: none"> to students if they enrol in an educational programme for a health profession in which there is a shortage; in order to recruit and retain health workers in geographical areas with imbalances and inequitable distribution of health workers.
Numerator	Not applicable
Denominator	Not applicable
Disaggregation	By cadre
Definition	<p>Existence of national policies, scholarships and grants providing financial and non-financial benefits, by cadre</p> <p>Capability indicators for interventions to increase student enrolment in educational programmes for health professions with shortages (Valid values: YES/NO):</p> <ol style="list-style-type: none"> Have actions been undertaken to influence favourably a potential student's decision to enter a certain programme of health professional education? Has monetary aid for students been introduced to influence favourably a potential student's decision to enter a programme of health professional education: this includes any grant, loan, tuition assistance, scholarship, fellowship, tax credit, savings subsidy, or other arrangement by which an entity provides or otherwise makes available monetary support? <p>Source: WHO (2013)</p> <p>Capability indicators for interventions to improve the recruitment and retention of health workers in geographical areas with imbalances and inequitable distribution of health workers (Valid values: YES/NO):</p> <p>Education:</p> <ol style="list-style-type: none"> Are there targeted admission policies to enrol students with a rural background in education programmes? Are there health professional schools outside of major cities? Are there clinical rotations in rural areas during studies? Do curricula reflect rural health issues? Are there continuous professional development programmes for health workers in underserved areas? <p>Regulation:</p> <ol style="list-style-type: none"> Do health workers have enhanced scope of practice in underserved areas? Is there regulation allowing different types of health workers to practise in underserved areas? Is there compulsory service in underserved areas for health workers? Are there scholarships, bursaries or other educational subsidies with enforceable agreements of return of service in underserved areas? <p>Financial:</p> <ol style="list-style-type: none"> Are there appropriate financial incentives, such as hardship allowances, grants for housing, free transportation, paid vacations, to improve retention in underserved areas? <p>Personal and professional support:</p> <ol style="list-style-type: none"> Are there policies to improve living conditions for health workers and their families in underserved areas? Are there policies to provide safe and supportive working environments for health workers in underserved areas? Are there policies to provide sufficient outreach support for health workers in underserved areas? Have career development programmes been introduced for health workers in underserved areas? Are there policies or programmes supporting the development of professional networks in underserved areas? Have public recognition measures been introduced to lift the profile of working in rural areas? <p>Source: WHO (2010)</p>
Glossary	Cadres
Data reporting frequency	Every three years
Potential data sources	<ul style="list-style-type: none"> Policy and strategic documents by the Government and competent authorities Survey among country experts or informants
Further information and related links	<ul style="list-style-type: none"> WHO (2013). Transforming and scaling up health professional education and training. Education Guidelines (http://apps.who.int/iris/bitstream/10665/93635/1/9789241506502_eng.pdf). WHO (2010). Increasing access to health workers in remote and rural areas through improved retention. Global policy recommendations (http://apps.who.int/iris/bitstream/10665/44369/1/9789241564014_eng.pdf).



Module 8

Skill mix composition for models of care

Skill distribution

- 8-01** Ratio of nursing professionals to physicians
- 8-02** Percentage of generalist physicians among all physicians
- 8-03** Specialized birth care workforce per 1000 live births, by subnational level
- 8-04** Specialized child care workforce per 1000 of under-5 population, by subnational level
- 8-05** Density of specialist surgical, anaesthetic, and obstetric care providers per 100 000 population
- 8-06** Existence of advanced nursing roles
- 8-07** Existence of policies addressing appropriate skill mix and new role development
- 8-08** Existence of primary care priorities

International Health Regulation (2005) capacity

- 8-09** Availability of human resources to implement IHR (2005) core capacity requirements
- 8-10** Applied epidemiology training programme in place such as Field Epidemiology Training Programme (FETP)

Health management training

- 8-11** Existence of health management certification requirements

Indicator name	Ratio of nursing professionals to physicians
Numerator	Total number of nurses, defined in headcounts
Denominator	Total number of physicians, defined in headcounts
Disaggregation	Not applicable
Definition	<p>Ratio of nursing professionals to physicians</p> <p>For global comparability, country data should be mapped against ISCO by these definitions:</p> <ul style="list-style-type: none"> • Nurses are nursing professionals as defined by the ISCO-2008 category 2221: <i>“Nursing professionals treat and provide care for people who are physically or mentally ill, the elderly, the injured or physically or mentally disabled.”</i> • Physicians are medical doctors as defined by the ISCO-2008 category 221: <i>“Medical doctors conduct research, improve or develop concepts, theories and operational methods, and apply preventive or curative measures.”</i> <p>Source: ILO (2012)</p>
Glossary	None
Data reporting frequency	Annual
Potential data sources	<ul style="list-style-type: none"> • Labour force surveys • Health workforce registry or database
Further information and related links	<ul style="list-style-type: none"> • ILO (2012). International Standard Classification of Occupations Structure, group definitions and correspondence tables (http://www.ilo.org/wcmsp5/groups/public/---dgreports/---dcomm/---publ/documents/publication/wcms_172572.pdf). • OECD (2016). Health workforce policies in OECD countries: Right jobs, right skills, right places (http://www.oecd.org/health/health-systems/health-workforce-policies-in-oecd-countries-9789264239517-en.htm).

Abbreviated name
Percentage of generalist physicians



Dimension: Skill distribution

Indicator name	Percentage of generalist physicians among all physicians
Numerator	Total number of generalist physicians, defined in headcounts
Denominator	Total number of physicians, defined in headcounts
Disaggregation	Not applicable
Definition	<p>Percentage of generalist physicians among all physicians</p> <ul style="list-style-type: none"> Generalist physicians are generalist medical doctors as defined by ISCO-2008 code 2211 as: <i>"(including family and primary care doctors) diagnose, treat and prevent illness, disease, injury, and other physical and mental impairments and maintain general health in humans through application of the principles and procedures of modern medicine. They plan, supervise and evaluate the implementation of care and treatment plans by other health care providers. They do not limit their practice to certain disease categories or methods of treatment, and may assume responsibility for the provision of continuing and comprehensive medical care to individuals, families and communities."</i> Physicians are medical doctors as defined by the ISCO-2008 category 221: <i>"Medical doctors conduct research, improve or develop concepts, theories and operational methods, and apply preventive or curative measures."</i> <p>Source: ILO (2012)</p>
Glossary	None
Data reporting frequency	Annual
Potential data sources	<ul style="list-style-type: none"> Labour force surveys Health workforce registry or database Medical doctor or physician associations registry or database
Further information and related links	<ul style="list-style-type: none"> ILO (2012). International Standard Classification of Occupations Structure, group definitions and correspondence tables (http://www.ilo.org/wcmsp5/groups/public/---dgreports/---dcomm/---publ/documents/publication/wcms_172572.pdf). OECD (2016). Health workforce policies in OECD countries: Right jobs, right skills, right places (http://www.oecd.org/health/health-systems/health-workforce-policies-in-oecd-countries-9789264239517-en.htm).

Indicator name	Specialized birth care workforce per 1000 live births, by subnational level (This indicator is best measured relative to pregnancies where data is available)
Numerator	Total number of gynaecologists, obstetricians, nurses, midwives, defined in headcounts
Denominator	Total number of live births
Disaggregation	By subnational level
Definition	<p>Specialized birth care workforce per 1000 live births, by subnational level</p> <ul style="list-style-type: none"> • Gynaecologists are concerned with the functions and diseases specific to women and girls, especially those affecting the reproductive system. • Obstetricians specialized in pregnancy and childbirth • Midwives are midwifery professionals defined by the ISCO-2008 code 221: “<i>plan, manage, provide and evaluate midwifery care services before, during and after pregnancy and childbirth. They provide delivery care for reducing health risks to women and newborn children according to the practice and standards of modern midwifery, working autonomously or in teams with other health care providers.</i>” • Nurses are nursing professionals as defined by the ISCO-2008 category 2221: “<i>Nursing professionals treat and provide care for people who are physically or mentally ill, the elderly, the injured or physically or mentally disabled.</i>” <p>Source: OECD (2015), ILO (2012)</p>
Glossary	<ul style="list-style-type: none"> • Medical doctors: Specialists • Subnational level
Data reporting frequency	Annual
Potential data sources	<ul style="list-style-type: none"> • Health workforce registry or database • Physician associations registry or database • Labour force surveys • Population census data
Further information and related links	<ul style="list-style-type: none"> • ILO (2012). International Standard Classification of Occupations Structure, group definitions and correspondence tables (http://www.ilo.org/wcmsp5/groups/public/---dgreports/---dcomm/---publ/documents/publication/wcms_172572.pdf). • OECD (2015). Health Statistics 2015. July 2015 (http://www.oecd.org/health/health-data.htm). • WHO (2004). Making pregnancy safer: the critical role of the skilled attendant. A joint statement by WHO, ICM and FIGO (http://apps.who.int/iris/bitstream/10665/42955/1/9241591692.pdf). • WHO (2008). Unsafe abortion: Global and regional estimates of the incidence of unsafe abortion and associated mortality in 2008 (http://apps.who.int/iris/bitstream/10665/44529/1/9789241501118_eng.pdf).

Abbreviated name
Specialized child care workforce



Dimension: Skill distribution

Indicator name	Specialized child care workforce per 1000 of under-5 population, by subnational level
Numerator	Total number of paediatricians, nurses and allied health professionals, defined in headcounts
Denominator	Total number of population under 5
Disaggregation	By subnational level
Definition	<p>Specialized child care workforce per 1000 of under-5 population, by subnational level</p> <ul style="list-style-type: none"> • Paediatricians <i>“deal with the development, care, and diseases of children.”</i> • Population under 5. <p>Source: ILO (2012), OECD (2015)</p>
Glossary	<ul style="list-style-type: none"> • Medical doctors: Specialists • Subnational level • Allied health professionals
Data reporting frequency	Annual
Potential data sources	<ul style="list-style-type: none"> • Health workforce registry or database • Physician associations registry or database • Labour force surveys • Population census data
Further information and related links	<ul style="list-style-type: none"> • ILO (2012). International Standard Classification of Occupations Structure, group definitions and correspondence tables (http://www.ilo.org/wcmsp5/groups/public/---dgreports/---dcomm/---publ/documents/publication/wcms_172572.pdf). • OECD Health Statistics (2015). July 2015; (http://www.oecd.org/health/health-data.htm). • Transforming our world: the 2030 Agenda for Sustainable Development (https://sustainabledevelopment.un.org/post2015/transformingourworld).

Indicator name	Density of specialist surgical, anaesthetic, and obstetric care providers per 100 000 population
Numerator	Total number of specialist surgical, anaesthetic, and obstetric care providers, defined in headcounts
Denominator	Total population
Disaggregation	Not applicable
Definition	Density of specialist surgical, anaesthetic, and obstetric (SAO) care providers per 100 000 population
Glossary	Specialist surgical workforce
Data reporting frequency	Annual
Potential data sources	<ul style="list-style-type: none"> • Health workforce registry or database • Professional associations registry or database • Population census data
Further information and related links	<ul style="list-style-type: none"> • WHO EESC Global Database (http://www.who.int/surgery/eesc_database/en/). • Homer H et al. Global Distribution of Surgeons, Anaesthesiologists and Obstetricians. Lancet Global Health. 2015 Apr 27;3 Suppl 2:S9-S11 (http://www.thelancet.com/journals/langlo/article/PIIS2214-109X(14)70349-3/abstract). • Specialist surgical workforce (per 100,000 population) (http://data.worldbank.org/indicator/SH.MED.SAOP.P5). • WHO Global Health Observatory data (http://www.who.int/gho/en/).

Indicator name	Existence of advanced nursing roles
Numerator	Not applicable
Denominator	Not applicable
Disaggregation	Not applicable
Definition	<p>Existence of advanced nursing roles</p> <p>Existence of advanced nursing roles, measured by multiple capability indicators (Valid values: YES/NO):</p> <ul style="list-style-type: none"> • In your country is there a commonly accepted definition of 'nurse practitioner'? • In your country is there another commonly accepted definition of other types of nurses working in advanced roles? • In your country are there formal requirements to become a nurse practitioner or other type of advanced-practice nurse in terms of specified training, qualifications, experience, certification/registration etc.? • In your country are there ad-hoc/local methods of nurses being trained "on the job" to acquire specific skills which will lead to them being employed in advanced roles? <p>Source: OECD (2004)</p>
Glossary	Nurse practitioner
Data reporting frequency	Every three years
Potential data sources	<ul style="list-style-type: none"> • Survey among country experts or informants • Policy and strategic documents by governments and competent authorities
Further information and related links	<p>OECD (2004). Skill-Mix and Policy Change in the Health Workforce: Nurses in Advanced Roles. Authors: James Buchan and Lynn Calman (https://www.oecd.org/els/health-systems/33857785.pdf).</p> <p>OECD (2010). Nurses in Advanced Roles: A Description and Evaluation of Experiences in 12 Developed Countries. Authors: Marie-Laure Delamaire and Gaetan Lafortune (http://www.oecd-ilibrary.org/social-issues-migration-health/nurses-in-advanced-roles_5kmbrcfms5g7-en).</p>

Indicator name	Existence of policies addressing appropriate skill mix and new role development
Numerator	Not applicable
Denominator	Not applicable
Disaggregation	Not applicable
Definition	<p>Existence of policies addressing appropriate skill mix and new role development, measured by multiple capability indicators (Valid values: YES/NO). In your country:</p> <ul style="list-style-type: none"> • are there recent policies (in the last five years) aimed to improve skill mix and provide available evidence regarding their effectiveness? <ul style="list-style-type: none"> a) substitution between physicians and nurses b) substitution between generalist physicians and specialist physicians c) other types of substitutions • are there recent policies (in the last five years) aimed to enhance the capacity of nurses to perform the following types of care? <ul style="list-style-type: none"> a) prescribing b) billing c) referring to specialist in gatekeeper system <p>Source: OECD (2014)</p>
Glossary	None
Data reporting frequency	Every three years
Potential data sources	<ul style="list-style-type: none"> • Survey among country experts or informants • Policy and strategic documents by governments and competent authorities
Further information and related links	OECD (2004). Skill-Mix and Policy Change in the Health Workforce: Nurses in Advanced Roles. Authors: James Buchan and Lynn Calman (https://www.oecd.org/els/health-systems/33857785.pdf).

Indicator name	Existence of primary care priorities
Numerator	Not applicable
Denominator	Not applicable
Disaggregation	Not applicable
Definition	<p>Existence of priorities of primary care, measured by multiple capability indicators (Valid values: YES/NO).</p> <p>In your country:</p> <ul style="list-style-type: none"> do policies exist on supporting the development of 'primary care teams'? <i>[Primary care team: "fellow professionals with complementary contributions to make in patient care. This would be part of a broader social trend away from deference and hierarchy and towards mutual respect and shared responsibility and cooperation".]</i> do primary health care (PHC) policies, where they exist, include a role for community health workers? do patients have affordable, timely access to PHC that is geographically convenient? are PHC facilities functioning, with workers who are motivated, competent, and equipped to provide PHC services? does the system offer the well-established key functions of PHC including first contact accessibility (from the user perspective), coordination, comprehensiveness, continuity, and safety? does the system appropriately organize and manage important elements of PHC delivery, including team-based care, supportive supervision, population health management, and use of information systems that aid in monitoring services and continually improve quality? <p>Source: WHO Europe (2004), The Primary Health Care Performance Initiative (2015)</p>
Glossary	Community health workers
Data reporting frequency	Annual
Potential data sources	<ul style="list-style-type: none"> Survey among country experts or informants Policy and strategic documents by governments and competent authorities
Further information and related links	<ul style="list-style-type: none"> WHO Europe (2004). Main terminology (http://www.euro.who.int/en/health-topics/Health-systems/primary-health-care/main-terminology). The Primary Health Care Performance Initiative (2015). Measuring PHC (http://phcperformanceinitiative.org/about-us/measuring-phc/#/ConceptualFramework).

Dimension: International Health Regulation (2005) capacity

Indicator name	Availability of human resources to implement IHR (2005) core capacity requirements										
Numerator	Not applicable										
Denominator	Not applicable										
Disaggregation	Not applicable										
Definition	<p>Availability of human resources to implement IHR (2005) core capacity requirements</p> <p>Human resources to implement IHR (2005) core capacity requirements concerns epidemiologists, clinicians, biostatisticians, information systems specialists, veterinarians, social scientists, laboratory technicians/ specialists and other public health personnel for different levels of the health system (local, intermediate and national), the availability of these capacities and multi-disciplinary teams.</p> <p>This can be measured by the following question: Which of the following situations fits your country best, with regard to human resources available to implement IHR (2005) core capacity requirements:</p> <table> <tr> <td>My country doesn't have multidisciplinary human resource capacity required for implementation of IHR (2005) core capacities</td><td>No capacity: 1</td></tr> <tr> <td>My country has multidisciplinary human resource capacity (epidemiologists, veterinarians, clinicians and laboratory specialists or technicians) at national level</td><td>Limited capacity: 2</td></tr> <tr> <td>Multidisciplinary human resource capacity is available at national and intermediate level</td><td>Developed capacity: 3</td></tr> <tr> <td>Multidisciplinary human resource capacity is available as required at relevant levels of public health system (e.g. epidemiologist at national and intermediate levels, and assistant epidemiologist –or short-course trained epidemiologist – at local level are available)</td><td>Demonstrated capacity: 4</td></tr> <tr> <td>My country has capacity to send and receive multidisciplinary personnel within country (shifting resources) and internationally</td><td>Sustainable capacity: 5</td></tr> </table> <p>Source: WHO (2016)</p>	My country doesn't have multidisciplinary human resource capacity required for implementation of IHR (2005) core capacities	No capacity: 1	My country has multidisciplinary human resource capacity (epidemiologists, veterinarians, clinicians and laboratory specialists or technicians) at national level	Limited capacity: 2	Multidisciplinary human resource capacity is available at national and intermediate level	Developed capacity: 3	Multidisciplinary human resource capacity is available as required at relevant levels of public health system (e.g. epidemiologist at national and intermediate levels, and assistant epidemiologist –or short-course trained epidemiologist – at local level are available)	Demonstrated capacity: 4	My country has capacity to send and receive multidisciplinary personnel within country (shifting resources) and internationally	Sustainable capacity: 5
My country doesn't have multidisciplinary human resource capacity required for implementation of IHR (2005) core capacities	No capacity: 1										
My country has multidisciplinary human resource capacity (epidemiologists, veterinarians, clinicians and laboratory specialists or technicians) at national level	Limited capacity: 2										
Multidisciplinary human resource capacity is available at national and intermediate level	Developed capacity: 3										
Multidisciplinary human resource capacity is available as required at relevant levels of public health system (e.g. epidemiologist at national and intermediate levels, and assistant epidemiologist –or short-course trained epidemiologist – at local level are available)	Demonstrated capacity: 4										
My country has capacity to send and receive multidisciplinary personnel within country (shifting resources) and internationally	Sustainable capacity: 5										
Glossary	<ul style="list-style-type: none"> • International Health Regulations (2005) • Public health workforce 										
Data reporting frequency	Every three years										
Potential data sources	<ul style="list-style-type: none"> • Ministry of Health • Regional Ministries of Health • Public health institutions 										
Further information and related links	WHO (2016). Joint external evaluation tool: International Health Regulations (2005) (http://apps.who.int/iris/bitstream/10665/204368/1/9789241510172_eng.pdf).										

Abbreviated name
Applied epidemiology training programme

8-10

Dimension: International Health Regulation (2005) capacity

Indicator name	Applied epidemiology training programme in place such as Field Epidemiology Training Programme (FETP)										
Numerator	Not applicable										
Denominator	Not applicable										
Disaggregation	Not applicable										
Definition	<p>Existence of Field Epidemiology Training Programme (FETP) or other applied epidemiology training programme.</p> <p>This can be measured by the following question: Which of the following situations fits your country best, with regard to applied epidemiology training programmes in place such as FETP:</p> <table> <tr> <td>No FETP or applied epidemiology training programme established</td><td>No capacity: 1</td></tr> <tr> <td>No FETP or applied epidemiology training programme established within the country, but staff participate in a programme hosted in another country through an existing agreement (at basic, intermediate and/or advanced level)</td><td>Limited capacity: 2</td></tr> <tr> <td>One level of FETP (basic, intermediate, or advanced) FETP or comparable applied epidemiology training programme in place in the country or in another country through an existing agreement</td><td>Developed capacity: 3</td></tr> <tr> <td>Two levels of FETP (basic, intermediate and/or advanced) or comparable applied epidemiology training programme(s) in place in the country or in another country through an existing agreement</td><td>Demonstrated capacity: 4</td></tr> <tr> <td>Three levels of FETP (basic, intermediate and advanced) or comparable applied epidemiology training programme(s) in place in the country or in another country through an existing agreement, with sustainable national funding</td><td>Sustainable capacity: 5</td></tr> </table> <p>Source: WHO (2016)</p>	No FETP or applied epidemiology training programme established	No capacity: 1	No FETP or applied epidemiology training programme established within the country, but staff participate in a programme hosted in another country through an existing agreement (at basic, intermediate and/or advanced level)	Limited capacity: 2	One level of FETP (basic, intermediate, or advanced) FETP or comparable applied epidemiology training programme in place in the country or in another country through an existing agreement	Developed capacity: 3	Two levels of FETP (basic, intermediate and/or advanced) or comparable applied epidemiology training programme(s) in place in the country or in another country through an existing agreement	Demonstrated capacity: 4	Three levels of FETP (basic, intermediate and advanced) or comparable applied epidemiology training programme(s) in place in the country or in another country through an existing agreement, with sustainable national funding	Sustainable capacity: 5
No FETP or applied epidemiology training programme established	No capacity: 1										
No FETP or applied epidemiology training programme established within the country, but staff participate in a programme hosted in another country through an existing agreement (at basic, intermediate and/or advanced level)	Limited capacity: 2										
One level of FETP (basic, intermediate, or advanced) FETP or comparable applied epidemiology training programme in place in the country or in another country through an existing agreement	Developed capacity: 3										
Two levels of FETP (basic, intermediate and/or advanced) or comparable applied epidemiology training programme(s) in place in the country or in another country through an existing agreement	Demonstrated capacity: 4										
Three levels of FETP (basic, intermediate and advanced) or comparable applied epidemiology training programme(s) in place in the country or in another country through an existing agreement, with sustainable national funding	Sustainable capacity: 5										
Glossary	<ul style="list-style-type: none"> • FETP (Field Epidemiology Training Programme) levels • International Health Regulations (2005) • Public health workforce 										
Data reporting frequency	Every three years										
Potential data sources	<ul style="list-style-type: none"> • Ministry of Health • Regional Ministries of Health • Public health institutions • Educational and training institutions 										
Further information and related links	WHO (2016). Joint external evaluation tool: International Health Regulations (2005) (http://apps.who.int/iris/bitstream/10665/204368/1/9789241510172_eng.pdf).										

Indicator name	Existence of health management certification requirements
Numerator	Not applicable
Denominator	Not applicable
Disaggregation	Not applicable
Definition	<p>Existence of health management certification requirements, measured by multiple indicators (Valid values: YES/NO):</p> <p>In your country:</p> <ul style="list-style-type: none"> • are there certification requirements in management for those leading health services and health institutions? • are there certification requirements in management specifically for health services and programme managers (professional that has been chosen to lead a health-care institution)? • is there a national definition of public health and management competencies (the requirements, which include ethics training, need certification in management whether through a university course or in-service training)? <p>Source: Pan American Health Organization (2011)</p>
Glossary	None
Data reporting frequency	Every three years
Potential data sources	<ul style="list-style-type: none"> • Survey among country experts or informants • Policy and strategic documents by governments and competent authorities
Further information and related links	<p>PAHO (2011). Handbook for measurement and monitoring indicators of the regional goals for human resources for health: A shared commitment (http://www.paho.org/hq/index.php?option=com_content&view=article&id=5696%3A2011-manual-medicion-monitoreo-indicadores-metas-regionales-recursos-humanos&catid=526%3Ainfo&Itemid=2054&lang=en).</p>



Module 9

Performance and productivity

Absenteeism

9-01 Compensated absence rate due to illness per health worker, by cadre

9-02 Self-reported absence rate due to illness per health worker, by cadre

Productivity

9-03 Average number of outpatient visits or consultations, per year, by cadre, by facility type

9-04 Number of hospital patient bed-days per hospital staff, per year

Productivity / responsiveness

9-05 Average duration of outpatient visits or consultations per doctor, per year, by facility type

Responsiveness

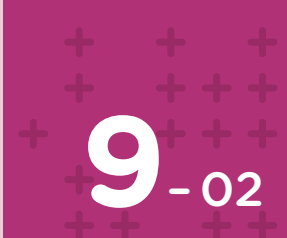
9-06 Existence of patient experience measurements with ambulatory care providers

Competencies / quality

9-07 Quality diabetes care at primary care level

Indicator name	Compensated absence rate due to illness per health worker, by cadre
Numerator	The number of workdays lost per year due to illness (excluding maternity leave)
Denominator	The total number of active health workforce, defined in headcounts
Disaggregation	By cadre
Definition	<p>Compensated absence rate due to illness per health worker, by cadre</p> <ul style="list-style-type: none"> • Illness-related leave days (excluding maternity leave) <p>Source: OECD (2015)</p>
Glossary	Absenteeism
Data reporting frequency	Annual
Potential data sources	<ul style="list-style-type: none"> • Social security statistics • Social insurance services • Labour force surveys
Further information and related links	<ul style="list-style-type: none"> • OECD (2015). Health statistics: Definitions, sources and methods. Compensated absence from work due to illness (http://www.oecd.org/els/health-systems/health-data.htm). • European Foundation for the Improvement of Living and Working Conditions (2010). Absence from work (http://www.eurofound.europa.eu/observatories/eurwork/comparative-information/absence-from-work). • US Bureau of Labor Statistics Division of Information Services (2008). Glossary.

Abbreviated name
Self-reported absence rates due to illness

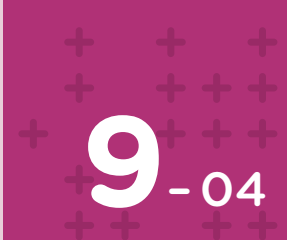


Dimension: Absenteeism

Indicator name	Self-reported absence rate due to illness per health worker, by cadre
Numerator	The average number of self-reported workdays lost per year due to illness (excluding maternity leave)
Denominator	Not applicable
Disaggregation	By cadre
Definition	<p>Self-reported absence rate due to illness per health worker, by cadre</p> <ul style="list-style-type: none"> • Illness-related leave days (excluding maternity leave) <p>Source: OECD (2015)</p>
Glossary	<ul style="list-style-type: none"> • Absenteeism • Self-reported absence rate
Data reporting frequency	Annual
Potential data sources	<ul style="list-style-type: none"> • Labour force surveys • Social or health employee surveys
Further information and related links	<ul style="list-style-type: none"> • OECD (2015). Health statistics: Definitions, sources and methods. Self-reported absence from work due to illness (http://www.oecd.org/els/health-systems/health-data.htm). • European Foundation for the Improvement of Living and Working Conditions (2010). Absence from work (http://www.eurofound.europa.eu/observatories/eurwork/comparative-information/absence-from-work). • US Bureau of Labor Statistics Division of Information Services (2008). Glossary.

Indicator name	Average number of outpatient visits or consultations, per year, by cadre, by facility type
Numerator	Total number of outpatient consultations per year
Denominator	Total number of active health workers, defined in headcounts
Disaggregation	By cadre, by facility type
Definition	<p>Average number of outpatient visits or consultations per year, by cadre, by facility type</p> <ul style="list-style-type: none"> • Outpatient visits or consultations <p>Source: OECD (2015)</p>
Glossary	Outpatient visits or consultations
Data reporting frequency	Annual
Potential data sources	<ul style="list-style-type: none"> • Physician surveys • Health facility data • Health workforce registry or database • Labour force surveys
Further information and related links	<p>OECD (2015). Health statistics: Definitions, sources and methods. Doctors consultations (in all settings) (http://www.oecd.org/els/health-systems/health-data.htm).</p>

Abbreviated name
Inpatient volume of activity per staff



Dimension: Productivity

Indicator name	Number of hospital patient bed-days per hospital staff, per year
Numerator	Total number of hospital patient bed-days per year
Denominator	Total hospital staff, defined in headcounts
Disaggregation	Not applicable
Definition	Number of hospital patient bed-days per hospital staff, per year
Glossary	Hospital patient bed-days
Data reporting frequency	Annual
Potential data sources	<ul style="list-style-type: none"> • Health facility data • Hospital volume/production data
Further information and related links	OECD (2015). Health statistics: Definitions, sources and methods. Hospital (inpatient) bed-days by diagnostic categories (http://www.oecd.org/els/health-systems/health-data.htm).

Indicator name	Average duration of outpatient visits or consultations per doctor, per year, by facility type
Numerator	Number of outpatient doctor consultations, per year
Denominator	Total number of outpatient visits or consultations, per year
Disaggregation	By cadre and by facility type
Definition	Average duration of outpatient visits or consultations per doctor, per year, by facility type
Glossary	<ul style="list-style-type: none"> • Facility type • Outpatient visits or consultations
Data reporting frequency	Annual
Potential data sources	<ul style="list-style-type: none"> • Health facility data • Physician surveys • Patient surveys
Further information and related links	OECD (2015). Health statistics: Definitions, sources and methods. Doctors consultations (in all settings) (http://www.oecd.org/els/health-systems/health-data.htm).

Abbreviated name
Existence of patient experience measurements



Dimension: Responsiveness

Indicator name	Existence of patient experience measurements with ambulatory care providers
Numerator	Not applicable
Denominator	Not applicable
Disaggregation	By ambulatory health care provider
Definition	<p>Existence of patient experience measurements with ambulatory care providers</p> <p>Patient experiences, measured by capability indicators from the OECD Patient Experience Module, formulated as: "In your country, is there a current and national measurement of (Valid value: YES/NO):</p> <ul style="list-style-type: none"> • Patients reporting having spent enough time with any doctor during the consultation • Patients reporting having spent enough time with their regular doctor during the consultation • Patients reporting having received easy-to-understand explanations by any doctor • Patients reporting having received easy-to-understand explanations by their regular doctor • Patients reporting having had the opportunity to ask questions or raise concerns to any doctor • Patients reporting having had the opportunity to ask questions or raise concerns to their regular doctor • Patients reporting having been involved in decisions about care or treatment by any doctor • Patients reporting having been involved in decisions about care or treatment by their regular doctor." <p>Source: OECD (2016)</p>
Glossary	Ambulatory care provision
Data reporting frequency	Annual
Potential data sources	Patient surveys
Further information and related links	<ul style="list-style-type: none"> • OECD (2016). List of variables in OECD health statistics. OECD Health Statistics 2015. Updated January 2016. (https://www.oecd.org/els/health-systems/List-of-variables-OECD-Health-Statistics-2015.pdf). • Berman P (2000). Organization of ambulatory care provision: a critical determinant of health system performance in developing countries. Bull World Health Organ, 78(6). • OECD (2015). Health at a glance (http://www.oecd.org/els/health-systems/List-of-variables-OECD-Health-Statistics-2015.pdf).

Indicator name	Quality diabetes care at primary care level
Numerator	Not applicable
Denominator	Not applicable
Disaggregation	By subnational level
Definition	<p>Existence of quality diabetes care at primary care level</p> <p>In your country, indicate current practice for early detection, diagnosis, and management of diabetes at the primary care level (Valid values: Generally practiced; Generally not practiced; Unknown)</p> <ul style="list-style-type: none"> • Assessment of diabetes and cardiovascular disease risk and diagnostic testing of people at high risk by blood glucose or HbA1c measurement • HbA1c testing at least once a year • Annual screening for albuminuria (nephropathy), prevention of progress by ACE inhibitors • Strict control of blood pressure and cholesterol • Referral to eye exam (visual acuity, dilated pupils fundus exam) upon diagnosis of type 2 diabetes and at least once every two years or as recommended by an ophthalmologist <p>Existence of quality diabetes care at primary care level measured by:</p> <ul style="list-style-type: none"> • Proportion of patients who have HbA1c <7 % • Proportion of patients >40 years who receive a statin <p>Source: adapted from WHO (2013,2014)</p>
Glossary	None
Data reporting frequency	Every three years
Potential data sources	<ul style="list-style-type: none"> • Country Profile of Capacity and Response to Noncommunicable Diseases Questionnaire • Facility and administration data • Health examination surveys
Further information and related links	<ul style="list-style-type: none"> • WHO (2014). Global status report on noncommunicable diseases 2014 (http://www.who.int/nmh/publications/ncd-status-report-2014/en/) and questionnaire (http://www.who.int/chp/ncd_capacity/CCS_2013_Questionnaire.pdf?ua=1). • WHO (2013). Package of Essential (PEN) Noncommunicable disease interventions for primary health care in low-resource settings (http://www.who.int/cardiovascular_diseases/publications/implementation_tools_WHO_PEN/en/)



Module 10

Health workforce governance, information systems and planning

Governance

- 10-01** Existence of HRH unit or function that is responsible for developing and monitoring policies and plans on HRH and negotiating intersectoral relationships with other line ministries and stakeholders
- 10-02** Existence of national mechanisms to provide adequate oversight of the private sector

Health workforce information systems

- 10-03** Existence of health worker registry / registries
- 10-04** Existence of health workforce information systems to track health workforce stock, flow and distribution, remuneration, demand, supply and capacity

Health workforce policies

- 10-05** Existence of policies, mechanisms and models for health workforce planning and forecasting
- 10-06** Existence of national education plans for health workers, aligned with the national health plan
- 10-07** Existence of institutional models for assessing and monitoring staffing needs for health services
- 10-08** Existence of a national policy on self-sufficiency in human resources for health
- 10-09** Implementation of the WHO Global Code of Practice on the International Recruitment of Health Personnel in the country

Compliance with International Health Regulations (2005)

- 10-10** Health workforce strategy addressing public health workforce related to International Health Regulations (2005)

Indicator name	Existence of HRH unit or function that is responsible for developing and monitoring policies and plans on HRH and negotiating intersectoral relationships with other line ministries and stakeholders
Numerator	Not applicable
Denominator	Not applicable
Disaggregation	Not applicable
Definition	<p>Existence of HRH unit or function that is responsible for developing and monitoring policies and plans on HRH and negotiating intersectoral relationships with other line ministries and stakeholders.</p> <p>The indicator consists of the following questions (Valid values: YES/NO):</p> <ul style="list-style-type: none"> • Is there a unit dedicated for the development of health workforce policies and plans in the government authority responsible for health? • Is there an institution or unit dedicated for the development of health workforce policies and plans outside the government authority responsible for health? • Is there a unit or are there functions for monitoring health workforce policies and plans? • Are there institutional mechanisms in place to coordinate an intersectoral health workforce agenda, including negotiations and intersectoral relationships with other line ministries and stakeholders? <p>In countries with regional substructures responsible for the health workforce, the answer at national level should be YES, if the mechanism exists for more than 50% of the regions.</p> <p>Source: WHO (2016)</p>
Glossary	None
Data reporting frequency	Annual
Potential data sources	<ul style="list-style-type: none"> • Ministry of Health • Regional Ministries of Health • Institutions or units responsible for policies on human resources for health
Further information and related links	<ul style="list-style-type: none"> • WHO (2016). Global strategy on human resources for health: Workforce 2030 (http://www.who.int/hrh/resources/globstrathrh-2030/en/) • EU Joint Action on Health Workforce Planning and Forecasting (2015). Handbook on health workforce planning methodologies across EU countries (http://healthworkforce.eu/wp-content/uploads/2015/11/150306_WP5_D052-Handbook-on-HWF-Planning-Methodologies-across-EU-Countries_Release-1_Final-version.pdf).

Indicator name	Existence of national mechanisms to provide adequate oversight of the private sector
Numerator	Not applicable
Denominator	Not applicable
Disaggregation	Not applicable
Definition	<p>Existence of national mechanisms to provide adequate oversight of the private sector</p> <p>The indicator consists of the following questions (Valid values: YES/NO):</p> <ul style="list-style-type: none"> • Are there national mechanisms to provide information about the number and skill distribution of health workers working in privately owned health facilities? • Are there national mechanisms to provide information about the remuneration or income of health workers working in privately owned health facilities? • Are there national mechanisms to provide information about the working time covered by health workers working in privately owned health facilities? • Are there regulatory mechanisms for working time and working conditions in privately owned health facilities? <p>In countries with regional substructures responsible for the health workforce, the answer at national level should be YES if the mechanism exists for more than 50%.</p> <p>Source: WHO (2016)</p>
Glossary	Facility/institution ownership type
Data reporting frequency	Annual
Potential data sources	<ul style="list-style-type: none"> • Ministry of Health • Regional Ministries of Health • Institutions or units responsible for policies on human resources for health
Further information and related links	<ul style="list-style-type: none"> • WHO (2016). Global strategy on human resources for health: Workforce 2030 (http://www.who.int/hrh/resources/globstrathrh-2030/en/). • WHO (2010). Strengthening the capacity of governments to constructively engage the private sector in providing essential health-care services. Report by the Secretariat (http://apps.who.int/gb/ebwha/pdf_files/WHA63/A63_25-en.pdf). • McPake B, Scott A, Edoka I, editors (2014). Analyzing markets for health workers: Insights from labor and health economics. Directions in Development. Washington (DC): World Bank.

Indicator name	Existence of health worker registry / registries
Numerator	Not applicable
Denominator	Not applicable
Disaggregation	Not applicable
Definition	<p>Existence of health worker registry/registries and unique identification number for individual health workers.</p> <ul style="list-style-type: none"> • The indicator consists of the following questions (the questions should be answered separately for the relevant cadres) (Valid values: YES/NO): • Is there a national registry with mandatory registration? • Is there a national registry with voluntary registration? • Are there registries at subnational level with mandatory registration? • Are there registries at subnational level with voluntary registration? • In case registries exist at subnational level, is the whole country covered by the subnational registries? • Is there a unique identification number for the health workers in the specific cadre?
Glossary	None
Data reporting frequency	Annual
Potential data sources	<ul style="list-style-type: none"> • Ministry of Health • Regional Ministry of Health • Professional chambers • Institutions or units responsible for monitoring or for policies on human resources for health
Further information and related links	<ul style="list-style-type: none"> • WHO (2015). Human resources for health information system: minimum data set for health workforce registry (http://www.who.int/hrh/statistics/minimum_data_set.pdf?ua=1). • WHO (2010). Monitoring the building blocks of health systems: a handbook of indicators and their measurement strategies (http://www.who.int/healthinfo/systems/WHO_MBHSS_2010_full_web.pdf). • WHO (2008). Human Resources for Health Minimum Data Set (http://www.who.int/hrh/documents/hrh_minimum_data_set.pdf). • EU Joint Action (2015). Health Workforce Planning & Forecasting. Minimum planning data requirements for health workforce planning (http://healthworkforce.eu/work-package-5/). • EU Joint Action (2015). Handbook on health workforce planning methodologies across EU countries (http://healthworkforce.eu/work-package-5/).

Abbreviated name
Health workforce information system functions

10-04

Dimension: Health workforce policies

Indicator name	Existence of health workforce information systems to track health workforce stock, flow and distribution, remuneration, demand, supply and capacity
Numerator	Not applicable
Denominator	Not applicable
Disaggregation	Not applicable
Definition	<p>Existence of health workforce information systems to track health workforce stock, flow and distribution, remuneration, demand, supply and capacity</p> <p>The indicator consists of the following questions (Valid values: YES/PARTLY/NO):</p> <ul style="list-style-type: none"> • Is there a health workforce information system, which provides information about the health workforce stock? • Is there a health workforce information system, which provides information about the subnational distribution of the health workforce? • Is there a health workforce information system, which provides information about the inflows and outflows for health labour market? • Is there a health workforce information system, which provides information about the demand and supply for health workers? • Is there a health workforce information system, which provides information about the remuneration of health workers? <p>The answer is YES if complete information or a significant amount of information is available on the specific domain and all the significant cadres are covered.</p> <p>The answer is PARTLY if the health workforce information system provides some elements of information on the specific domain, but not sufficient for a comprehensive overview, or the information is not available for all the significant cadres, or information is not available for the whole country, just for specific subnational areas.</p> <p>Source: WHO (2016)</p>
Glossary	None
Data reporting frequency	Annual
Potential data sources	<ul style="list-style-type: none"> • Ministry of Health • Regional Ministries of Health • Institutions or units responsible for monitoring or for policies on human resources for health • Institutions collecting data on health workforce
Further information and related links	<ul style="list-style-type: none"> • WHO (2016). Global strategy on human resources for health: Workforce 2030 (http://www.who.int/hrh/resources/globstrathrh-2030/en/). • WHO (2010). Monitoring the building blocks of health systems: a handbook of indicators and their measurement strategies (http://www.who.int/healthinfo/systems/WHO_MBHSS_2010_full_web.pdf). • EU Joint Action (2015). Health Workforce Planning & Forecasting. Minimum planning data requirements for health workforce planning (http://healthworkforce.eu/work-package-5/). • EU Joint Action (2015). Health Workforce Planning & Forecasting. Report on health workforce planning data preparing to tomorrow's meaningful actions (to be published May 2016)

Dimension: Health workforce policies

Indicator name	Existence of policies, mechanisms and models for health workforce planning and forecasting
Numerator	Not applicable
Denominator	Not applicable
Disaggregation	Not applicable
Definition	<p>Existence of policies, mechanisms and models for health workforce planning and forecasting.</p> <p>The indicator consists of the following questions (Valid values: YES/PARTLY/NO):</p> <ol style="list-style-type: none"> 1. Is there strong political commitment and awareness on health workforce planning? 2. Are clear and explicit health workforce planning objectives set up in national health policy? 3. Is there a coordinated communication and information flow among national-level stakeholders? 4. Is there a dedicated and established Health Workforce (HWF) Planning Committee, a designated entity or a specific group at the national level responsible for HWF? 5. Is there multisectoral collaboration in HWF planning? 6. Is there a methodology established or are explicit model elements used for HWF planning? 7. Are data covered and complete on both supply and demand sides? 8. Are different data sources linked to each other, is data exchange fostered, or is an integrated, interlinked database/warehouse used? 9. Are there supporting online platforms or human resource information systems for HWF planning? 10. Are qualitative methods used for HWF planning? 11. Is there a regular evaluation and continuous fine-tuning of the HWF Planning System? 12. Are policy actions, based on the recommendations of the HWF Planning Committee, implemented? 13. Is sustainability ensured by accomplishable, adequate resources? 14. Is health workforce planning synchronized and aligned with the national health sector policies, strategies and plans? <p>Source: EU Joint Action (2016c)</p>
Glossary	<ul style="list-style-type: none"> • Cadres • Health workforce planning
Data reporting frequency	Every three years
Potential data sources	<ul style="list-style-type: none"> • Ministry of Health • Regional Ministries of Health • Institutions or units responsible for policies on human resources for health
Further information and related links	<ul style="list-style-type: none"> • EU Joint Action (2016c). Health Workforce Planning and Forecasting. Report on health workforce planning data. Preparing to tomorrow's meaningful actions. Toolkit on Health Workforce Planning, Tool 1 (http://healthworkforce.eu/work-package-4/, to be published end May 2016). • EU Joint Action (2015). Handbook on health workforce planning methodologies across EU countries (http://healthworkforce.eu/work-package-5/). • WHO (2010). Models and tools for health workforce planning and projections. Human Resources for Health Observer, Issue No. 3 (http://apps.who.int/iris/bitstream/10665/44263/1/9789241599016_eng.pdf). • Ono T, LaFortune G, Schoenstein M (2013). Health workforce planning in OECD countries. A review of 26 projection models from 18 countries. OECD Health Working Papers No. 62. OECD publication (http://www.oecd-ilibrary.org/docserver/download/5k44t787zcbw.pdf?expires=1461184303&id=id&accname=guest&checksum=F7D5A00D111A623114CC7F4B7F29DCF5).

Abbreviated name
Education plans aligned with national health plan

10-06

Dimension: Health workforce policies

Indicator name	Existence of national education plans for health workers, aligned with the national health plan
Numerator	Not applicable
Denominator	Not applicable
Disaggregation	Not applicable
Definition	<p>Existence of national education plans for health workers, aligned with the national health plan in order to ensure that health workforce education and training contribute to achieving universal health coverage.</p> <p>The indicator consists of the following questions (Valid values: YES/NO):</p> <ul style="list-style-type: none"> • Is there a national education plan for health workers? • Is the national education plan for health workers coherent with the national health policy, strategy or plan? • Are there collaboration efforts between the stakeholders involved in education plan development? • Are strategic steps taken in considering and taking into account the workforce market needs and absorptive capacities for the education plan development? <p>In countries where education for health workers is organized at regional level, the answer at national level should be YES if the mechanism exists for more than 50% of the regions.</p> <p>Source: WHO (2013)</p>
Glossary	Education plan
Data reporting frequency	Every three years
Potential data sources	<ul style="list-style-type: none"> • Ministry of Health, Ministry of Education • Regional Ministries of Health, Regional Ministries of Education • Institutions or units responsible for policies on human resources for health • Educational institutions
Further information and related links	<ul style="list-style-type: none"> • WHO (2013). Transforming and scaling up health professional education and training (http://whoeducationguidelines.org/sites/default/files/uploads/WHO_EduGuidelines_20131202_web.pdf). • WHO (2013). World Health Assembly resolution 66.23: Transforming health workforce education in support of universal health coverage (http://apps.who.int/gb/ebwha/pdf_files/WHA66/A66_R23-en.pdf).

Indicator name	Existence of institutional models for assessing and monitoring staffing needs for health services
Numerator	Not applicable
Denominator	Not applicable
Disaggregation	Not applicable
Definition	<p>Existence of institutional models for assessing and monitoring staffing needs for health services</p> <p>The indicator consists of the following questions (Valid values: YES/NO):</p> <ul style="list-style-type: none"> • Is there an existing mechanism to determine how many health workers of a particular type are required to cope with the workload in health facilities? • Is there an existing mechanism to assess the workload pressure of health workers in health facilities? <p>Source: WHO (2015)</p>
Glossary	None
Data reporting frequency	Every three years
Potential data sources	<ul style="list-style-type: none"> • Ministry of Health • Regional Ministries of Health • Institutions or units responsible for policies on human resources for health • Health facilities
Further information and related links	<ul style="list-style-type: none"> • WHO (2015). Workload indicators on staffing needs. User's manual (http://www.who.int/hrh/resources/WISN_Eng_UsersManual.pdf?ua=1). • WHO (1998). Workload indicators on staffing needs. A manual for implementation (http://www.who.int/hrh/documents/en/workload_indicators.pdf). • PAHO (2011). Handbook for measurement and monitoring indicators of the regional goals for human resources for health: A shared commitment (http://www.paho.org/hq/index.php?option=com_content&view=article&id=5696%3A2011-manual-medicion-monitoreo-indicadores-metas-regionales-recursos-humanos&catid=526%3Ainfo&Itemid=2054&lang=en). • WHO-Western Pacific (2007). Regional strategy on human resources for health 2006–2015 (http://www.wpro.who.int/publications/PUB_978_92_9061_2445/en/). • EU Joint Action on Health Workforce Planning and Forecasting (2015). Handbook on health workforce planning methodologies across EU countries (http://healthworkforce.eu/wp-content/uploads/2015/11/150306_WP5_D052-Handbook-on-HWF-Planning-Methodologies-across-EU-Countries_Release-1_Final-version.pdf).

Self-sufficiency policies as an element of HRH planning standards

Abbreviated name

Dimension: Health workforce policies

Indicator name	Existence of a national policy on self-sufficiency in human resources for health
Numerator	Not applicable
Denominator	Not applicable
Disaggregation	Not applicable
Definition	<p>Existence of a national policy with the explicit aim of achieving self-sufficiency in human resources for health.</p> <p>Does a national policy on self-sufficiency in human resources for health exist? (Valid values: YES/NO):</p> <p>If yes, which self-sufficiency policies are currently used? (Valid values: YES/NO):</p> <ul style="list-style-type: none"> • A commitment to train more health professionals based on calculations of population health workforce needs at country level • A recruitment programme that emphasizes the special needs of rural communities • A retention strategy that considers worker compensation, working conditions and safety, professional roles and deployment and communication with and participation in management decisions. <p>Source: PAHO (2011)</p>
Glossary	Self-sufficiency in HRH
Data reporting frequency	Every three years
Potential data sources	<ul style="list-style-type: none"> • Ministry of Health and Health Regions • Professional licensing boards
Further information and related links	<ul style="list-style-type: none"> • PAHO (2011). Handbook for measurement and monitoring indicators of the regional goals for human resources for health: A shared commitment (http://www.paho.org/hq/index.php?option=com_content&view=article&id=5696%3A2011-manual-medicin-monitoreo-indicadores-metas-regionales-recursos-humanos&catid=526%3Ainfo&Itemid=2054&lang=en). • WHO (2016). Global strategy on human resources for health: Workforce 2030 (http://www.who.int/hrh/resources/globstrathrh-2030/en/). • WHO , National Reporting Instrument (http://www.who.int/hrh/migration/code/code_nri/en). • WHO (2010). The WHO Global Code of Practice on the International Recruitment of Health Personnel (http://www.who.int/hrh/migration/code/code_en.pdf?ua=1). • WHO-Western Pacific (2007). Regional strategy on human resources for health 2006–2015 (http://www.wpro.who.int/publications/PUB_978_92_9061_2445/en/).

Indicator name	Implementation of the WHO Global Code of Practice on the International Recruitment of Health Personnel in the country
Numerator	Not applicable
Denominator	Not applicable
Disaggregation	Not applicable
Definition	<p>Capability indicators on implementation of the WHO Global Code of Practice on the International Recruitment of Health Personnel (Valid values: YES/NO):</p> <ol style="list-style-type: none"> 1. Has a national authority been designated for monitoring the implementation of the WHO Global Code of Practice? 2. Has an assessment of what is needed to implement the Code at the national, subnational and local level been made? 3. Has your country taken any steps to implement the Code? 4. Has the Code been publicized and implemented by the Member State in collaboration with all stakeholders as stipulated in Article 2.2, in accordance with national and subnational responsibilities? 5. Are all stakeholders as stipulated in Article 2.2 consulted, as appropriate, in decision-making processes and involved in other activities related to the international recruitment of health personnel? 6. Do all stakeholders referred to in Article 2.2 strive to work individually and collectively to achieve the objectives of this Code? 7. Is there, to the extent possible, cooperation with relevant stakeholders and maintenance of a record, updated at regular intervals, of all recruiters authorized by competent authorities to operate within their jurisdiction? 8. Are good practices among recruitment agencies encouraged and promoted by only using those that comply with the guiding principles of the Code? 9. Is the magnitude of active international recruitment of health personnel from countries facing a critical shortage of health personnel observed and assessed, and is the scope and impact of circular migration assessed? <p>Source: WHO (2011)</p>
Glossary	None
Data reporting frequency	Every three years
Potential data sources	WHO National Reporting Instrument (NRI)
Further information and related links	<ul style="list-style-type: none"> • WHO (2010). The WHO Global Code of Practice on the International Recruitment of Health Personnel (http://www.who.int/hrh/migration/code/code_en.pdf?ua=1). • WHO , National Reporting Instrument (http://www.who.int/hrh/migration/code/code_nri/en). • PAHO (2011). Handbook for measurement and monitoring indicators of the regional goals for human resources for health: A shared commitment (http://www.paho.org/hq/index.php?option=com_content&view=article&id=5696%3A2011-manual-medicion-monitoreo-indicadores-metas-regionales-recursos-humanos&catid=526%3Ainfo&Itemid=2054&lang=en).

Abbreviated name
Strategy addressing public health workforce

10-10

Dimension: Compliance with International Health Regulations (2005)

Indicator name	Health workforce strategy addressing public health workforce related to International Health Regulations (2005)											
Numerator	Not applicable											
Denominator	Not applicable											
Disaggregation	Not applicable											
Definition	<p>Existence of public health workforce strategy addressing public health workforce in line with the International Health Regulations (2005).</p> <p>Workforce strategy:</p> <table><tr><td>No health workforce strategy exists</td><td>No capacity: 1</td></tr><tr><td>A healthcare workforce strategy exists but does not include public health professions (e.g. epidemiologists, veterinarians and laboratory technicians)</td><td>Limited capacity: 2</td></tr><tr><td>A public health workforce strategy exists, but is not regularly reviewed, updated, or implemented consistently</td><td>Developed capacity: 3</td></tr><tr><td>A public health workforce strategy has been drafted and implemented consistently; strategy is reviewed, tracked and reported on annually</td><td>Demonstrated capacity: 4</td></tr><tr><td>“Demonstrated capacity” has been achieved, public health workforce retention is tracked and plans are in place to provide continuous education, retain and promote qualified workforce within the national system</td><td>Sustainable capacity: 5</td></tr></table> <p>Source: WHO(2016)</p>		No health workforce strategy exists	No capacity: 1	A healthcare workforce strategy exists but does not include public health professions (e.g. epidemiologists, veterinarians and laboratory technicians)	Limited capacity: 2	A public health workforce strategy exists, but is not regularly reviewed, updated, or implemented consistently	Developed capacity: 3	A public health workforce strategy has been drafted and implemented consistently; strategy is reviewed, tracked and reported on annually	Demonstrated capacity: 4	“Demonstrated capacity” has been achieved, public health workforce retention is tracked and plans are in place to provide continuous education, retain and promote qualified workforce within the national system	Sustainable capacity: 5
No health workforce strategy exists	No capacity: 1											
A healthcare workforce strategy exists but does not include public health professions (e.g. epidemiologists, veterinarians and laboratory technicians)	Limited capacity: 2											
A public health workforce strategy exists, but is not regularly reviewed, updated, or implemented consistently	Developed capacity: 3											
A public health workforce strategy has been drafted and implemented consistently; strategy is reviewed, tracked and reported on annually	Demonstrated capacity: 4											
“Demonstrated capacity” has been achieved, public health workforce retention is tracked and plans are in place to provide continuous education, retain and promote qualified workforce within the national system	Sustainable capacity: 5											
Glossary	<ul style="list-style-type: none">• International Health Regulations (2005)• Public health workforce											
Data reporting frequency	Annual											
Potential data sources	<ul style="list-style-type: none">• Ministry of Health• Regional Ministries of Health• Institutions or units responsible for policies on human resources for health• Public health institutions											
Further information and related links	WHO (2016). Joint external evaluation tool: International Health Regulations (2005) (http://apps.who.int/iris/bitstream/10665/204368/1/9789241510172_eng.pdf).											



Annex 1

NHWA as an instrument
to address HRH
challenges at national
level

While HRH challenges may be immediate, some can only be adequately addressed through actions that have long time delays. For example, if there is a current workforce shortage, the development of a self-sustainable workforce requires effective interventions across a range of factors, including training and education, recruitment and retention. Some of these actions have long lead-in times before their effect is realized.

The NHWA can support Member States in the implementation of HRH policies according to specific national needs. It does so by providing the indicators that enable Member States to collect and organize information on their health workforce. As this information develops over time it allows the effective identification of policy questions, the effective design of policy actions and the evaluation of those policy interventions. While the indicators cannot replace a workforce planning process that can investigate in detail the health worker labour market, collecting and analysing the data and indicators of the NHWA can help Member States that are confronted with a certain HRH policy dilemma in the following ways:

- + to develop their understanding of the baseline situation;
- + to set up targets;
- + to monitor implementation of any interventions;
- + to identify trends; and
- + to evaluate the effectiveness of any interventions.

Because of the differences in national health systems, as well as in HRH challenges which Member States face, the NHWA offers countries the opportunity to use and combine indicators according to their national needs at a certain point in time. Certain indicators may be of less relevance or unavailable, while others can be used in more depth, even with additional indicators or sub-indicators in national sets. All Member States transparently reporting NHWA have the added benefit of increasing our collective knowledge about the effectiveness of HRH policy actions in context-specific settings and the development of evidence to support HRH development.

To facilitate the use of the NHWA in addressing HRH policy challenges, all 10 modules are related to various domains of the health labour market, so that relevant indicators can be selected accordingly. As policy questions are often highly complex, it is advised that indicators from various modules are combined over time to provide adequate answers. Two examples of how the NHWA can be used to answer policy questions are presented below.

Example 1: Self-sustainability in HRH

As advocated by the WHO Global Code of Practice on the International Recruitment of Health Personnel (WHO, 2010), all Member States should strive, to the extent possible, to create a sustainable health workforce and work towards establishing effective health workforce plan-

ning, education and training, and retention strategies that will reduce their need to recruit migrant health personnel. Hence, policies and strategies addressing national self-sustainability need to be developed, implemented, monitored and evaluated. Self-sustainability occurs when national production replaces the health worker loss caused by exits, but this is affected by many influencing factors from inside and outside of the national labour market.

For understanding the situation regarding self-sustainability and for the development of policy interventions, the following modules of the NHWA are of relevance:

- M01 – Active health workforce stock
- M02 – Health workers in education
- M03 – Education regulation
- M05 – Health labour market flows
- M10 – Health workforce governance, information systems and planning

A possible set of supporting indicators is described in the table below:

Policy question:

Can the national production of health workers replace the health worker loss caused by exits?

M01 – Active health workforce stock:

- 1–02: Health worker density
- 1–05: Activity ratio
- 1–07: Distribution by age
- 1–08: Median age of health workers
- 1–09: Dependency on foreign health workers

M05 – Health labour market flows:

- 5–01: Graduates starting practice
- 5–02: Entry rate into health labour market
- 5–03: Exit rate from health labour market
- 5–07: Immigration rate
- 5–08: Emigration rate
- 5–10: National variance of the stock of active health workers

M02 – Health workforce in education:

- 2–01: Applicants to education and training places ratio
- 2–02: Entrants to education and training places ratio
- 2–08: Graduation rate by cadre
- 2–09: Education output by cadre, by institutional ownership

M10 – Health workforce governance, information systems and planning:

- 10–03: Health workforce information system functions
- 10–05: Health workforce planning policies
- 10–09: Self-sufficiency policies as an element of HRH planning standards

M03 – Education regulation:

- 3–01: Duration and contents of education

Example 2: Balanced geographical distribution of the HWF

Many countries suffer from geographical imbalances in the distribution of their health workforce, with most (severe) shortages arising in rural and remote areas (Dussault & Franceschini, 2006). As financial and economic considerations are known to influence health workers' decision to stay in or leave a job, a common implemented policy strategy to recruit and retain health workers in underserved areas – and hence to increase population access to health workers in these areas – comprises financial incentives.

For understanding the situation regarding geographical imbalances of the health workforce and for the development of policy interventions, the following modules of the NHPA are of relevance:

- M01 – Active health workforce stock
- M05 – Health labour market flows
- M07 – Health workforce spending and remuneration
- M09 – Performance and productivity
- M10 – Health workforce governance, information systems and planning.

A possible set of supporting indicators is described in the table below:

Policy question:

Do financial incentives for health workers to settle in underserved areas lead to a more balanced geographical distribution of the health workforce across the country or region?

M01 – Active health workforce stock:

- 1–03: Health worker density at subnational level
- 1–12: Geographical distribution of health workers

M05 – Health labour market flows:

- 5–04: Unemployment rate
- 5–05: Vacancy rate
- 5–09: Information on intention to leave

M07 – Health workforce spending and remuneration:

- 7–05: Incentives for addressing shortages and geographical imbalances

M09 – Performance and productivity:

- 9–07: Effective control of chronic diseases

M10 – Health workforce governance, information systems and planning:

- 10–05: Health workforce planning policies
- 10–09: Self-sufficiency policies as an element of HRH planning standards



Glossary



Absenteeism	Non-attendance when scheduled to work, holidays and other planned leave excluded (Huczynski and Fitzpatrick, 1989). Absenteeism is seen as an indicator of poor individual performance, as well as a breach of an implicit contract between employee and employer.
Applicants	Individuals who make a formal application to an education programme.
Accreditation	<p>Accreditation is a process by which an officially approved body, on the basis of assessment of learning outcomes and /or competences according to different purposes and methods, awards qualifications (certificates, diplomas or titles), or grants equivalences, credit units or exemptions, or issues documents such as portfolios of competences. In some cases, the term accreditation applies to the evaluation of the quality of an institution or a programme as a whole.</p> <p>(UNESCO Guidelines (2012). Recognition, validation and accreditation of the outcomes of non-formal and formal learning, http://unesdoc.unesco.org/images/0021/002163/216360e.pdf)</p>
Accreditation mechanisms	<p>Mechanisms and procedures for implementation of an accreditation process.</p> <p>(WHO Guidelines (2013). Policy Brief on Accreditation of Institutions for Health Professional Education, http://whoeducationguidelines.org/sites/default/files/uploads/whoeduguidelines_PolicyBrief_Accreditation.pdf)</p>
Accreditation standards	<p>Accreditation standards are intended to guide health workforce education programme development and evaluation, facilitate diagnosis of strengths and weaknesses relating to the education programme, and to stimulate quality improvement.</p> <p>(World Federation of Medical Education global standards (2015), http://wfme.org/standards/bme/78-new-version-2012-quality-improvement-in-basic-medical-education-english/file)</p>
Accreditation systems	<p>The accreditation system should be: based on standards; supported by a legislative instrument; independent; transparent; non-profit-making; accountable; representative of, but independent from, all major stakeholders; and efficiently administered.</p> <p>(WHO-WFME Task Force on Accreditation. Accreditation of medical education institutions (2004). Report of a technical meeting http://www.who.int/hrh/documents/WFME_report.pdf)</p>
Active health workers	Active health workers are those who provide services for patients (practising health professionals). In case of data not available for practising health workers, data closest to practising (professionally active health workers, health workers with active license) can be used.
Activity level	<p>Activity level categories are based on the definitions of OECD/Eurostat/WHO-Europe Joint Questionnaire on Non-Monetary Health Care Statistics.</p> <p>Practising health workers: health workers who provide services for patients and communities.</p> <p>Professionally active health workers: practising health workers and other health professionals whose qualification is a prerequisite for executing a job (e.g. in education, research, public administration).</p> <p>Health workers licensed to practise: practising and other (non-practising) health workers who are registered and entitled to practise as health-care professionals.</p> <p>(OECD/Eurostat/WHO-Europe (2015). Joint Questionnaire on Non-Monetary Health Care Statistics, Guidelines for completing the OECD/Eurostat/WHO-Europe 2015, http://www.oecd.org/statistics/data-collection/Health%20Data%20-%20Guidelines%202.pdf)</p>
Age groups	<p>Disaggregation by the following age groups:</p> <ul style="list-style-type: none"> • under 25 years; • 25-34 years; • 35-44 years; • 45-54 years; • 55-64 years; • 65 years and above.

Allied health professionals	<p>Allied health professionals are a diverse group of health care workers who provide necessary services to patients in addition to, or in place of, services provided by physicians, nurses and medical paraprofessionals.</p> <p>(Demo et Al., ASAHP Leadership Development Program. J Allied Health 2015; 44 (1):57-62. http://www.asahp.org/wp-content/uploads/2015/04/A-Call-for-Action-Advocating-for-Increased-Funding.pdf)</p>
Ambulatory care provision	<p>The individuals and organizations that deliver personal health-care services on an outpatient basis.</p> <p>(Peter Berman (2000, p792). Organization of ambulatory care provision: a critical determinant of health system performance in developing countries. Bull World Health Organ. 78(6))</p>
Cadres	<p>Cadres are to be determined by occupation according to ISCO-08 Codes preferably, or other national classifications.</p> <p>(ILO, International Standard Classification of Occupations Structure, group definitions and correspondence tables. 2012.</p> <p>http://www.ilo.org/wcmsp5/groups/public/---dgreports/---dcomm/---publ/documents/publication/wcms_172572.pdf)</p>
Childcare support	<p>Financial support to parents in payment of childcare fees to childcare institutions (e.g. day-care centres, family day care) for the services they provide to them and their children.</p> <p>(OECD Family Database, http://www.oecd.org/els/family/database.htm#structure)</p>
Community health workers	<p>Community health workers provide health education, referral and follow up, case management, and basic preventive health care and home visiting services to specific communities. They provide support and assistance to individuals and families in navigating the health and social services system.</p> <p>(ILO (2008), International Standard Classification of Occupations)</p>
Compensated absence rate	<p>The number of workdays lost per health worker per year due to illness (excluding maternity leave).</p> <p>(OECD, OECD Health Statistics 2015. July 2015. http://www.oecd.org/health/health-data.htm)</p>
Continuing professional development	<p>Training that is beyond clinical update and includes wide-ranging competencies like research and scientific writing; multidisciplinary context of patient care; professionalism and ethical practice; communication, leadership, management and behavioural skills; team building; information technology; auditing; and appropriate attitudinal change to ensure improved patient service and research outcomes and attainment of the highest degree of satisfaction by stakeholders.</p> <p>Types of continuing professional development may include:</p> <ul style="list-style-type: none"> • Courses and lectures • Training days • Peer review • Clinical audit • Reading journals • Attending conferences • E-learning activity <p>Continuing professional development may be included in national standards of conduct, performance and ethics that govern health workers.</p> <p>(World Health Organization Guidelines. Transforming and Scaling up Health Professional Education and Training Glossary, http://whoeducationguidelines.org/content/4-glossary-intervention-terms)</p>

Continuing professional development (mandatory)

National systems for continuing professional development (CPD) may be voluntary or mandatory. Mandatory systems may include the requirement for both verifiable, and general and non-verifiable CPD. Verifiable CPD is activity that meets an agreed definition of CPD and for which there is documentary evidence that the health worker has undertaken the CPD and that the CPD has:

- concise educational aims and objectives;
- clear anticipated outcomes; and
- quality controls.

Cost category

Cost categories of expenditure on health workforce:

- Compensation of employees
 - Wages and salaries
 - Social contributions
 - All other costs related to employees
- Self-employed professional remuneration.

(OECD/WHO/Eurostat (2011). Classification of Factors of Health Care Provision (ICHA-FP)" in A system of health accounts: 2011 Edition, OECD Publishing, <http://dx.doi.org/10.1787/9789264116016-11-en>)

Current expenditure on health care

Final consumption expenditure of resident units on health-care goods and services.

(A system of health accounts: 2011 Edition, OECD Publishing, <http://dx.doi.org/10.1787/9789264116016-11-en>)

Education

The processes by which societies deliberately transmit their accumulated information, knowledge, understanding, attitudes, values, skills, competencies and behaviours across generations. It involves communication designed to bring about learning.

(UNESCO, <http://www.uis.unesco.org/Education/Documents/iscd-2011-en.pdf>)

Education level

International Standard Classification of Education ISCED 2011

(<http://www.uis.unesco.org/Education/Documents/iscd-2011-en.pdf>)

Education plan for health workers

All levels and all types of education, including technical and vocational education and training in a framework of lifelong learning, aligned with education sector-wide plans and national health plan.

Education programmes

Educational programme is defined as a coherent set or sequence of educational activities or communication designed and organized to achieve pre-determined learning objectives or accomplish a specific set of educational tasks over a sustained period.

An education programme can, in a national context, be strictly defined and regulated. The ISCED definition of an education programme caters to multiple possibilities available in different countries with the purpose of reaching comparability at the international level.

(International Standard Classification of education ISCED 2011 <http://www.uis.unesco.org/Education/Documents/iscd-2011-en.pdf>)

Education places

A unit expressing the number of individuals that an education institution can educate and train for the duration of an education programme, including but not limited to adequate infrastructure and resources, and sustainable finance. It is a measure of the capacity of education institutions.

Education institution	<p>Established institution that provides education as its main purpose, such as a school, college, university or training centre. Such institutions are normally accredited or sanctioned by the relevant national education authorities or equivalent authorities. Educational institutions may also be operated by private organizations, such as religious bodies, special interest groups or private educational and training enterprises, both for profit and non-profit.</p> <p>(UNESCO, http://www.uis.unesco.org/Education/Documents/iscled-2011-en.pdf)</p> <p>Educational institutions are defined as entities that provide instructional services to individuals or education-related services to individuals and other educational institutions.</p> <p>(OECD Glossary of Statistical Terms, https://stats.oecd.org/glossary/detail.asp?ID=743)</p> <p>Source publication 2001 Data Collection on Education Systems: Definitions, Explanations and Instructions, UNESCO, OECD, Eurostat, p64.</p>
Employment	<p>Persons aged 15 years and more who are in one of the following categories:</p> <ul style="list-style-type: none"> (a) persons who work for at least one hour for pay or profit or family gain. (b) persons who have a job or business from which they are temporarily absent. <p>(EU Labour Force Survey (2016), http://ec.europa.eu/eurostat/statistics-explained/index.php/EU_labour_force_survey_-_methodology#Unemployment)</p>
Entrants	<p>Individuals enrolling at the start of an education level, set of levels, programme, or stage or module thereof, regardless of age.</p> <p>(UNESCO, http://www.uis.unesco.org/Education/Documents/iscled-2011-en.pdf)</p>
Facility/ institution ownership type	<p>Classification for ownership type:</p> <ul style="list-style-type: none"> • Publicly owned: Facilities owned or controlled by a governmental unit or another public corporation (where control is defined as the ability to determine the general corporate policy). • Not-for-profit privately owned: Facilities that are legal or social entities created for the purpose of producing goods and services, whose status does not permit them to be a source of income, profit, or other financial gain for the unit(s) that establish, control or finance them. • For-profit privately owned: Facilities that are legal entities set up for the purpose of producing goods and services and are capable of generating a profit or other financial gain for their owners. <p>(OECD (2015). Health statistics: Definitions, sources and methods, https://www.oecd.org/els/health-systems/Table-of-Content-Metadata-OECD-Health-Statistics-2015.pdf)</p>
Facility type	<p>Health facility types based on the classification of System of Health Accounts:</p> <ul style="list-style-type: none"> • Hospitals (HP.1) • Residential long-term care facilities (HP.2) • Providers of ambulatory health care (HP.3) • Ancillary services (HP.4, including transportation, emergency rescue, laboratories and others) • Retailers (HP.5, including pharmacies) • Providers of preventive care (HP.6) <p>(OECD, Eurostat, WHO (2011), A System of Health Accounts, OECD Publishing, http://www.who.int/health-accounts/methodology/sha2011.pdf)</p>

FETP (field epidemiology training programme) levels

FETP training levels

- FETP Basic Level Training: For local health staff, it consists of limited classroom hours interspersed throughout 3–5 month on-the-job field assignments to build capacity in conducting timely outbreak detection, public health response, and public health surveillance.
- FETP Intermediate Level Training: For intermediate level (district/regions) epidemiologists, it consists of limited classroom hours interspersed throughout 6–9 month on-the-job mentored field assignments to build capacity in conducting outbreak investigations, planned epidemiologic studies, and public health surveillance analyses and evaluations.
- FETP Advanced Level Training: With a national focus for advanced epidemiologists, it consists of limited classroom hours interspersed throughout 24-month mentored field assignments to build capacity in outbreak investigations, planned epidemiologic studies, public health surveillance analyses and evaluations, scientific communication and evidence-based decision-making for development of effective public health programming.

(WHO (2008). Joint external evaluation tool: International Health Regulations (2005) Second Edition, http://apps.who.int/iris/bitstream/10665/204368/1/9789241510172_eng.pdf)

Foreign-trained health workers

Health workers who have obtained their first medical qualification (degree) in another country and are entitled to practise in the receiving country.

(OECD (2015). Health Statistics: Definitions, sources and methods, <https://www.oecd.org/els/health-systems/Table-of-Content-Metadata-OECD-Health-Statistics-2015.pdf>).

FTE (full-time equivalent)

Full-time equivalent employment is defined as total hours worked divided by average annual hours worked in full-time jobs.

Depending on data availability on working hours, FTE level may also be calculated in the following ways:

- A worker with a full-time employment contract should be counted as 1 FTE. Concerning workers who do not have a full-time employment contract, full-time equivalent should be measured by the number of hours of work mentioned in each contract divided by the normal number of hours worked in full-time jobs.
- A worker with a full-time employment contract should be counted as 1 FTE. Concerning workers with part-time contracts, the practice in many countries is simply to consider that 2 part-time workers = 1 FTE.

(WHO/OECD/Eurostat. Joint Health Accounts Questionnaire)

Graduates of an education programme

Individuals who have successfully completed an education programme.

(UNESCO, <http://www.uis.unesco.org/Education/Documents/iscd-2011-en.pdf>)

Gross domestic product (GDP)

Final consumption expenditures + gross capital formation + net exports.

(OECD (2016). Gross domestic product (GDP) (indicator), http://www.oecd-ilibrary.org/economics/gross-domestic-product-gdp/indicator/english_dc2f7aec-en (accessed 23 April 2016)).

Health information system

The health information system provides the underpinnings for decision-making and has four key functions: (i) data generation, (ii) compilation, (iii) analysis and synthesis, and (iv) communication and use. The health information system collects data from health and other relevant sectors, analyses the data, ensures their overall quality, relevance and timeliness, and converts the data into information for health-related decision-making.

(WHO (2010). Monitoring the building blocks of health systems: a handbook of indicators and their measurement strategies, http://www.who.int/healthinfo/systems/WHO_MBHSS_2010_full_web.pdf)

Health workforce

All people engaged in actions whose primary intent is to enhance health (WHO definition). Three categories of workers relevant for health workforce analysis can be distinguished:

1. Those with health vocational education and training working in the health services industry
2. Those with training in a non-health field (or with no formal training) working in the health services industry
3. Those with health training who are either working in a non-healthcare related industry, or who are currently unemployed or not active in the labour market.

(WHO (2009). Handbook on monitoring and evaluation of human resources for health)

Health workforce planning

- Strategies that address the adequacy of the supply and distribution of the health workforce according to policy objectives and the consequential demand for health labour (EU Joint Action (2015). Handbook on Health Workforce Planning Methodologies across EU countries, <http://healthworkforce.eu/work-package-5/>)
- Ensuring the right number and type of health human resources are available to deliver the right services to the right people at the right time (Birch S et al. (2009). Health human resources planning and the production of health: development of an extended analytical framework for needs-based health human resources planning. Journal of Public Health Management and Practice, 15(6 Suppl), S56-61.)

Hospital patient bed-days

A bed-day is a day during which a person is confined to a bed and in which the patient stays overnight in a hospital. Day cases (patients admitted for a medical procedure or surgery in the morning and released before the evening) should be excluded.

(OECD (2015). Health statistics: Definitions, sources and methods. Hospital (inpatient) bed-days by diagnostic categories, <http://www.oecd.org/els/health-systems/health-data.htm>)

In-service training

Training* received while one is fully employed in the health sector.

(WHO Transformative Education Guidelines Glossary (2013), <http://whoeducationguidelines.org/content/4-glossary-intervention-terms>)

* Training, which is aimed at maintaining core competencies and developing new competencies in response to consumer demand and evolving public health needs.

(WHO Transformative Education Guidelines Policy Brief on Regulation of Health Professionals Education (2013), http://whoeducationguidelines.org/sites/default/files/uploads/whoeduguidelines_PolicyBrief_Regulation.pdf)

International Health Regulations (2005)

The International Health Regulations (IHR) are an international legal instrument that is binding on 196 countries across the globe, including all the Member States of WHO. Their aim is to help the international community prevent and respond to acute public health risks that have the potential to cross borders and threaten people worldwide.

WHO (2005). International Health Regulations, <http://www.who.int/ihr/publications/9789241596664/en/>)

Interprofessional education

Interprofessional education occurs when two or more health professionals learn about, from and with each other to enable effective collaboration and improve health outcomes. Professional is an all-encompassing term that includes individuals with the knowledge and/or skills to contribute to the physical, mental and social well-being of a community.

(WHO (2010). Framework for Action on Interprofessional Education & Collaborative Practice, http://apps.who.int/iris/bitstream/10665/70185/1/WHO_HRH_HPN_10.3_eng.pdf?ua=1)

Job vacancy	<p>A paid post that is newly created, unoccupied, or about to become vacant: (a) for which the employer is taking active steps and is prepared to take further steps to find a suitable candidate from outside the enterprise concerned; and (b) which the employer intends to fill either immediately or within a specific period of time.</p> <p>(Eurostat (2016), http://ec.europa.eu/eurostat/web/labour-market/job-vacancies)</p>
Leave entitlements to care for sick family members	<p>Entitlements to leave, sometimes paid, for employees with a child, partner, parent or other family member who is in need of care because of illness.</p> <p>(OECD Family Database, http://www.oecd.org/els/family/database.htm#structure)</p>
Lifelong learning	<p>All general education, vocational education and training, non-formal education and informal learning undertaken throughout life, resulting in an improvement in knowledge, skills and competencies, which may include professional ethics.</p> <p>(European Parliament and of the Council (2013) Directive 2013/55/eu of the European Parliament and of the Council, http://eur-lex.europa.eu/legal-content/EN/ALL/?uri=celex%3A32013L0055)</p>
Maternity leave (or pregnancy leave)	<p>Employment-protected leave of absence for employed women at around the time of childbirth, or adoption in some countries. The ILO convention on maternity leave stipulates the period of leave to be at least 14 weeks.</p> <p>(OECD Family Database, http://www.oecd.org/els/family/database.htm#structure)</p>
Medical doctors: Generalists	<p>Generalist medical doctors (ISCO 2008-2211) including family and primary care doctors diagnose, treat and prevent illness, disease, injury, and other physical and mental impairments and maintain general health in humans through application of the principles and procedures of modern medicine. They plan, supervise and evaluate the implementation of care and treatment plans by other health-care providers. They do not limit their practice to certain disease categories or methods of treatment, and may assume responsibility for the provision of continuing and comprehensive medical care to individuals, families and communities.</p> <p>(International Standard Classification of Occupations, 2008)</p>
Medical doctors: Specialists	<p>Specialist medical doctors (ISCO 2008-2212) diagnose, treat and prevent illness, disease, injury and other physical and mental impairments using specialized testing, diagnostic, medical, surgical, physical and psychiatric techniques, through application of the principles and procedures of modern medicine. They plan, supervise and evaluate the implementation of care and treatment plans by other health-care providers. They specialize in certain disease categories, types of patient or methods of treatment, and may conduct medical education and research activities in their chosen areas of specialization.</p> <p>(International Standard Classification of Occupations, 2008)</p>
Net inflow	<p>The difference between the number of health workers entered into the health labour market and the number of health workers who have left the health labour market in a given year, when more health workers entered than have left.</p>
Net outflow	<p>The difference between the number of health workers entered into the health labour market and the number of health workers who have left the health labour market in a given year, when more health workers have left than entered.</p>
Nurse Practitioner	<p>A Nurse Practitioner/Advanced Practice Nurse is a registered nurse who has acquired the expert knowledge base, complex decision-making skills and clinical competencies for expanded practice, the characteristics of which are shaped by the context and/or country in which s/he is credentialed to practice. A master's degree is recommended for entry level.</p> <p>(ICN Nurse Practitioner/Advanced Practice Nursing Network, https://international.aanp.org/About/Aims)</p>

Occupational health and safety	<p>The science of the anticipation, recognition, evaluation and control of hazards arising in or from the workplace that could impair the health and well-being of workers, taking into account the possible impact on the surrounding communities and the general environment.</p> <p>(ILO (2008). Fundamental principles of occupational health and safety, http://www.ilo.org/wcmsp5/groups/public/@dgreports/@dcomm/@publ/documents/publication/wcms_093550.pdf)</p>
Outpatient visits or consultations	<p>These include consultations/visits at the physician's office, consultations/visits in the patient's home, consultations/visits in outpatient departments in hospital, but excludes telephone contacts, visits for prescribed laboratory tests, visits to perform prescribed and scheduled treatment procedures, e.g. injections, physiotherapy, etc., visits to dentists, visits to nurses</p> <p>OECD (2015) (http://www.oecd.org/els/health-systems/health-data.htm).</p>
Parental leave	<p>Employment-protected leave of absence for employed parents, which is often supplementary to specific maternity and paternity leave periods, and frequently, but not in all countries, follows the period of maternity leave.</p> <p>(OECD Family Database, http://www.oecd.org/els/family/database.htm#structure)</p>
Part-time employment	<p>Part-time employment is defined as people in employment (whether employees or self-employed) who usually work less than 30 hours per week in their main job. Employed people are those aged 15 and over who report that they have worked in gainful employment for at least one hour in the previous week or who had a job but were absent from work during the reference week while having a formal job attachment.</p> <p>(OECD (2016). Part-time employment rate (indicator), doi: 10.1787/f2ad596c-en (accessed 23 April 2016), https://data.oecd.org/emp/part-time-employment-rate.htm)</p>
Paternity leave	<p>Employment-protected leave of absence for employed fathers at or in the first few months after childbirth.</p> <p>(OECD Family Database, http://www.oecd.org/els/family/database.htm#structure)</p>
People-centred care	<p>An approach to care that consciously adopts individuals', carers', families' and communities' perspectives as participants in, and beneficiaries of, trusted health systems that respond to their needs and preferences in humane and holistic ways. People-centred care also requires that people have the education and support they need to make decisions and participate in their own care. It is organized around the health needs and expectations of people rather than diseases.</p> <p>(WHO (2016). Framework on integrated, people-centred health services, http://www.who.int/servicedeliverysafety/areas/people-centred-care/en/)</p>
Public health workforce	<p>Public health workforce can be defined as a diverse workforce whose prime responsibility is the provision of core public health activities, irrespective of their organizational base.</p> <p>(WHO-Europe (2014). Addressing needs in the public health workforce in Europe. Vesna Bjegovic-Mikanovic, Katarzyna Czabanowska, Antoine Flahault, Robert Otok, Stephen Shortell, Wendy Wisbaum, Ulrich Laaser, http://www.euro.who.int/__data/assets/pdf_file/0003/248304/Addressing-needs-in-the-public-health-workforce-in-Europe.pdf)</p>
Public expenditure	<p>Public expenditure refers to expenditure incurred by public funds. Public funds are state, regional and local government bodies and social security schemes. Public capital formation includes publicly-financed investment in facilities plus capital transfers to the private sector for construction and equipment.</p> <p>(OECD Glossary of Statistical Terms, https://stats.oecd.org/glossary/detail.asp?ID=2198)</p>
Recurrent costs	<p>Recurrent costs are types of substantive costs that are sustained by targeted stakeholders on a regular basis.</p>

Regional typology

The classification is based on the OECD regional typology which takes into account the population density, the size of the urban centres located within a region and the driving time needed to reach a highly populated centre.

Categories of regions:

- Predominantly urban (PU)
- Intermediate close to a city (INC)
- Intermediate remote (INR)
- Predominantly rural close to a city (PRC)
- Predominantly rural remote (PRR).

OECD (2011). OECD Regional Typology, https://www.oecd.org/gov/regional-policy/OECD_regional_typology_Nov2012.pdf

OECD (2011). Defining and Describing Regions. In: OECD Regions at a Glance 2011, OECD Publishing, http://dx.doi.org/10.1787/reg_glance-2011-4-en

Registered health workers

Living health workers whose data are included in a health workforce registry regardless of their activity or validity of licences. Deceased persons should be excluded, regardless of whether they are included in the registry.

(WHO (2015). Human resources for health information system: minimum data set for health workforce registry, http://www.who.int/hrh/statistics/minimun_data_set.pdf?ua=1)

Relicensure

Relicensing means re-certifying an individual health worker as having attained the standards required to practise a particular cadre.

WHO Transforming and Scaling up Health Professional Education and Training (2013). Policy Brief on Accreditation of Institutions for Health Professional Education, http://whoeducationguidelines.org/sites/default/files/uploads/whoeduguidelines_PolicyBrief_Accreditation.pdf

Remuneration

Average gross annual income including social security contributions and income taxes payable by the employee and all income sources:

- **Wages and salaries** of employees including overtime payment, night work, work on weekends or other unsocial hours, allowances for working away from home or for housing, bonuses, commissions, gratuities.
- **Remuneration** of self-employed workers including capitation or fee-for-service reimbursement, bonuses, commissions, gratuities. Excluding operation costs/practice expenses.

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

Self-reported absence rate

The number of self-reported work days lost per health worker per year due to illness (excluding maternity leave).

(OECD, OECD Health Statistics 2015. July 2015, <http://www.oecd.org/health/health-data.htm>)

Self-sufficiency in HRH

Strategic investment in country infrastructure development to enhance its overall capacity to achieve a more optimal, stable and appropriately distributed health workforce through more effective recruitment and retention policies and programmes.

(PAHO (2011). Handbook for Measurement and Monitoring Indicators of the Regional Goals for Human Resources for Health: A Shared Commitment, http://www.paho.org/hq/index.php?option=com_docman&task=doc_view&gid=10910&Itemid=

Sex

The biological and physiological characteristics that define men and women.

(<http://apps.who.int/gender/whatisgender/en/>)

Skill mix	<p>A relatively broad term that can refer to the mix of staff in the workforce or the demarcation of roles and activities among different categories of staff.</p> <p>(OECD (2004). Skill-Mix and Policy Change in the Health Workforce: Nurses in Advanced Roles Authors: James Buchan and Lynn Calman, https://www.oecd.org/els/health-systems/33857785.pdf)</p>
Social accountability	<p>The obligation to direct their education, research, and service activities towards addressing the priority health concerns of the community, region, and/or nation they have a mandate to serve.</p> <p>(http://apps.who.int/iris/bitstream/10665/59441/1/WHO_HRH_95.7.pdf)</p>
Status in employment	<p>Status in employment distinguishes between two categories of the total employed:</p> <p>(a) wage and salaried workers (employees): workers who hold the type of jobs defined as “paid employment jobs”, where the incumbents hold explicit (written or oral) or implicit employment contracts that give them a basic remuneration that is not directly dependent upon the revenue of the unit for which they work;</p> <p>(b) self-employed workers: workers who, working on their own account or with one or a few partners or in cooperative, hold the type of jobs defined as a “self-employment jobs”, i.e. jobs where the remuneration is directly dependent upon the profits derived from the goods and services produced.</p> <p>(International Labour Organization, Key Indicators of the Labour Market database, http://www.ilo.org/global/statistics-and-databases/research-and-databases/kilm/WCMS_422401/lang--en/index.htm)</p>
Subnational levels	<p>For subnational level, administrative boundaries down to the second subnational level are to be used.</p> <p>(United Nations GIWG (2002–2006): Second Administrative Level Boundaries Dataset, http://salbgeonetwork.grid.unep.ch/geonetwork/srv/en/main.home)</p>
Specialist surgical workforce	<p>Specialist surgical workforce includes</p> <ul style="list-style-type: none"> • licensed, qualified physician surgeons • licensed, qualified physician anaesthesiologists • licensed, qualified physician obstetricians <p>WHO EESC Global Database (http://www.who.int/surgery/eesc_database/en/).</p> <p>WHO Global Health Observatory data (http://www.who.int/gho/en/).</p> <p>Specialist surgical workforce (per 100,000 population)</p> <p>(http://data.worldbank.org/indicator/SH.MED.SAOP.P5).</p>
Total expenditure on health workforce	<p>Sum of expenditures on:</p> <ul style="list-style-type: none"> • Compensation of employees (FP.1): <ul style="list-style-type: none"> • Wages and salaries (FP.1.1) • Social contributions (FP.1.2) • All other costs related to employees (FP.1.3) • Self-employed professional remuneration (FP.2) <p>(OECD/WHO/Eurostat (2011). Classification of Factors of Health Care Provision (ICHA-FP)”. In: A system of health accounts: 2011 Edition, OECD Publishing, http://dx.doi.org/10.1787/9789264116016-11-en)</p>
Total health expenditure	<p>Current health expenditure plus capital investment in health-care infrastructure.</p> <p>(<i>A system of health accounts: 2011 Edition</i>, OECD Publishing, http://dx.doi.org/10.1787/9789264116016-11-en)</p>
Total public health expenditure	<p>Current public health expenditure plus capital investment in health care infrastructure.</p> <p>(Health at a Glance 2011. OECD INDICATORS, http://www.oecd.org/els/health-systems/49105858.pdf)</p>

Unemployment	<p>Unemployed persons aged 15 to 74 years who are:</p> <ol style="list-style-type: none"> 1. not employed according to the definition of employment (see above); 2. currently available for work, i.e. available for paid employment or self-employment; 3. actively seeking work, i.e. taking specific steps to seek paid employment or self-employment. <p>(EU Labour Force Survey (2016), http://ec.europa.eu/eurostat/statistics-explained/index.php/EU_labour_force_survey_-_methodology#Unemployment)</p>
Unemployment rate	<p>Number of people unemployed as a percentage of the labour force (i.e. total number of people employed and unemployed).</p> <p>(Eurostat (2016), http://ec.europa.eu/eurostat/cache/metadata/en/tipsun_esms.htm)</p>
Vacancy rate	<p>Proportion of total posts that are vacant, according to the definition of job vacancy (see above), expressed as a percentage of total positions (both filled and unfilled).</p> <p>(Eurostat (2016), http://ec.europa.eu/eurostat/web/labour-market/job-vacancies)</p>



References



Accreditation of Interprofessional Health Education (2010), (<http://www.cihc.ca/files/aiphe/resources/ALPHE%20Principles%20and%20Practices%20Guide%20-%20v.2%20EN.pdf>).

Alberta Health (2014). Performance measure definition: Head count to FTE ratio (<http://www.health.alberta.ca/documents/PMD-Head-Count-FTE-Ratio.pdf>).

Birch S, Kephart G, Murphy G, O'Brien-Pallas L, Alder R & MacKenzie A (2009). Health human resources planning and the production of health: development of an extended analytical framework for needs-based health human resources planning. *J Public Health Manag Pract*, 15(6 Suppl), S56–61.

Cometto G, Witter S (2013). Tackling health workforce challenges to universal health coverage: setting targets and measuring progress. *Bull World Health Organ*. 91:881–5.

Commission on Collegiate Nursing Education CCNE (2013). Standards for accreditation of baccalaureate and graduate nursing programs (<http://www.aacn.nche.edu/ccne-accreditation/Standards-Amended-2013.pdf>).

Dussault G & Franceschini MC (2006). Not enough there, too many here: understanding geographical imbalances in the distribution of the health workforce. *Hum Resour Health*, 4(1):12.

EU Joint Action (2014). Report on the applicability of the WHO Global Code of Practice on the International Recruitment of Health Professionals in a European Union Context (http://healthworkforce.eu/wp-content/uploads/2015/10/150609_wp4_who_applicability_report.pdf).

EU Joint Action (2015a). Handbook on health workforce planning methodologies across EU countries (<http://healthworkforce.eu/work-package-5/>).

EU Joint Action (2015b). Health Workforce Planning and Forecasting – Minimum planning data requirements for health workforce planning (<http://healthworkforce.eu/work-package-5/>).

EU Joint Action (2016a). D042 Report on mobility data – Health workforce mobility data serving policy objectives (<http://healthworkforce.eu/work-package-4/>).

EU Joint Action (2016b). Report on the applicability of the WHO Global Code of Practice on the International Recruitment of Health Professionals in a European Union Context (<http://healthworkforce.eu/work-package-4/>).

EU Joint Action (2016c). A Health Workforce Planning and Forecasting – Report on Health Workforce Planning Data. Preparing to tomorrow's meaningful actions, Toolkit on Health Workforce Planning, Tool 1 (<http://healthworkforce.eu/work-package-4/>).

European Parliament and of the Council (2013). Directive 2013/55/eu of the European Parliament and of the Council (<http://eur-lex.europa.eu/legal-content/EN/ALL/?uri=celex%3A32013L0055>).

EuroStat, OECD, WHO (2011). A system of health accounts (<http://www.who.int/health-accounts/documentation/sha2011.pdf?ua=1>).

Eurostat (2016). EU labour force survey – methodology (http://ec.europa.eu/eurostat/statistics-explained/index.php/EU_labour_force_survey_-_methodology#Unemployment).

General Dental Council, UK (2013). Continuing professional development for dental professionals (<http://www.gdc-uk.org/Dentalprofessionals/CPD/Pages/default.aspx>).

General Dental Council, UK (2015). Quality Assurance Process BDS. A guide for providers of education and training programmes of dental students ([http://www.gdc-uk.org/Aboutus/education/Documents/QA%20Process%20for%20BDS%20providers%20\(2015\).pdf](http://www.gdc-uk.org/Aboutus/education/Documents/QA%20Process%20for%20BDS%20providers%20(2015).pdf)).

International Pharmaceutical Federation FIP (2014). Quality assurance of pharmacy education, The FIP global framework (http://fip.org/files/fip/PharmacyEducation/Quality_Assurance/QA_Framework_2nd_Edition_online_version.pdf).

McPake B, Scott A & Edoaka I (2014). Analyzing markets for health workers: insights from labor and health economics. World Bank Publications.

OECD (2004). Skill-mix and policy change in the health workforce: Nurses in advanced roles. Authors: Buchan J & Calman L (<https://www.oecd.org/els/health-systems/33857785.pdf>).

OECD (2011). Employment in the health and social sectors. In: Health at a glance 2011: OECD Indicators, OECD Publishing (http://dx.doi.org/10.1787/health_glance-2011-20-en).

OECD (2013a). Definition of functional urban areas (FUA) for the OECD metropolitan database (<http://www.oecd.org/gov/regional-policy/Definition-of-Functional-Urban-Areas-for-the-OECD-metropolitan-database.pdf>).

OECD (2013b). Earnings and wages (<https://data.oecd.org/earnwage/average-wages.htm>).

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

OECD (2015b). Health Statistics 2015. Definitions, sources and methods (<http://www.oecd.org/health/health-systems/Table-of-Content-Metadata-OECD-Health-Statistics-2015.pdf>).

OECD (2016a). Average wages (indicator) (doi: 10.1787/cc3e1387-en, accessed 13 April 2016).

OECD (2016b). Health Workforce Policies in OECD Countries: Right jobs, right skills, right places (<http://www.oecd.org/health/health-systems/health-workforce-policies-in-oecd-countries-9789264239517-en.htm>).

OECD (2016c). Fertility rates (indicator) (doi: 10.1787/8272fb01-en, accessed 13 April 2016).

OECD Statistics on health workforce migration (<http://stats.oecd.org>).

OECD.Stat, Annual Labour Force Statistics (ALFS). Employment by activities and status, for all countries except the United States (http://stats.oecd.org/Index.aspx?DataSetCode=ALFS_EMP#).

OECD, Eurostat & WHO (2011). A system of health accounts. OECD Publishing (doi: 10.1787/9789264116016-en, <http://www.who.int/healthaccounts/methodology/en/>).

OECD, Eurostat & WHO Regional Office for Europe (2015). Joint questionnaire on non-monetary health care statistics, Guidelines for completing the OECD/Eurostat/WHO-Europe questionnaire 2015 (<http://www.oecd.org/statistics/data-collection/Health%20Data%20-%20Guidelines%20.pdf>).

Ono T, LaFortune G & Schoenstein M (2013). Health Workforce Planning in OECD Countries. A review of 26 projection models from 18 countries. OECD Health Working Papers No. 62. OECD (<http://www.oecd-ilibrary.org/docserver/download/5k44t787zcwb.pdf?expires=1461184303&id=id&accname=guest&checksum=F7D5A00D111A623114CC7F4B7F29DCF5>).

Pan American Health Organization (2011). Handbook for measurement and monitoring indicators of the regional goals for human resources for health: A shared commitment (http://www.paho.org/hq/index.php?option=com_docman&task=doc_view&gid=10910&Itemid=).

Scott A, Araujo E, Menkulasi G, Cohen R (forthcoming). Chapter 2: Data requirements for the economic analysis of health workers labor markets. In: Scheffler R, Herbst C, Lemiere C, Campbell J, editors. Human Resources for Health Labor Market Toolkit.

Sousa A, Scheffler RM, Nyoni J & Boerma T (2013). A comprehensive health labour market framework for universal health coverage. *Bull World Health Organ.* 91(11):892–4.

UNESCO (2009). Education Indicators: Technical guidelines (<http://www.uis.unesco.org/Library/Documents/eiguide09-en.pdf>).

UNESCO Thematic Indicators to Monitor the Education 2030 Agenda (<http://www.uis.unesco.org/Education/Documents/43-indicators-to-monitor-education2030.pdf>).

United Nations Statistics Division (2008). International Standard Industrial Classification of All Economic Activities (ISIC), Rev.4 (http://unstats.un.org/unsd/publication/seriesM/seriesm_4rev4e.pdf).

UN (2015). General Assembly Resolution 70/1. Transforming our world: the 2030 Agenda for Sustainable Development (http://www.un.org/ga/search/view_doc.asp?symbol=A/RES/70/1&Lang=E <https://sustainabledevelopment.un.org/?menu=1300>).

UN (2016a). UN Secretary-General appoints High-Level Commission on Health Employment and Economic Growth. Statement by WHO Director-General Dr Margaret Chan, 2 March 2016 (<http://www.who.int/mediacentre/news/statements/2016/commission-health-employment/en/>).

UN (2016b). High-Level Commission on Health Employment and Economic Growth (<http://www.who.int/hrh/com-heeg/en/>).

USAID (2015a). Human resources for health indicators (<https://www.hfgproject.org/wp-content/uploads/2014/12/HRH-Indicators-Reference-Sheets-Final-2015.pdf>).

USAID (2015b). Human resources for health (HRH) indicator compendium, Capacity plus (<http://www.capacityplus.org/human-resources-health-indicator-compendium>).

WFME (2012). Global standards for quality improvement (<http://wfme.org/standards/bme/78-new-version-2012-quality-improvement-in-basic-medical-education-english/file>).

WHO (1995). Defining and measuring the social accountability of medical schools (http://apps.who.int/iris/bitstream/10665/59441/1/WHO_HRH_95.7.pdf).

WHO (1998). Workload indicators on staffing needs (WISN). A manual for implementation (http://www.who.int/hrh/documents/en/workload_indicators.pdf).

WHO (2003). Workplace violence in the health sector –country case studies research instruments: Survey questionnaire (http://www.who.int/violence_injury_prevention/violence/interpersonal/en/WVquestionnaire.pdf).

WHO (2006). World Health Report – Working together for health (http://www.who.int/whr/2006/whr06_en.pdf?ua=1).

WHO (2007). Assessing financing, education, management and policy context for strategic planning of HRH (http://www.who.int/hrh/tools/assessing_financing.pdf).

WHO (2008). Human resources for health minimum data set (http://www.who.int/hrh/documents/hrh_minimum_data_set.pdf).

WHO (2010a). The WHO Global code of practice on the international recruitment of health personnel ([http:// www.who.int/hrh/migration/code/practice/en/](http://www.who.int/hrh/migration/code/practice/en/)).

WHO (2010b). Action on interprofessional education & collaborative practice (http://apps.who.int/iris/bitstream/10665/70185/1/WHO_HRH_HPN_10.3_eng.pdf?ua=1).

WHO (2010c). Increasing access to health workers in remote and rural areas through improved retention – Global policy recommendations (http://apps.who.int/iris/bitstream/10665/44369/1/9789241564014_eng.pdf).

WHO (2010d). Monitoring the building blocks of health systems: A handbook of indicators and their measurement strategies (http://www.who.int/healthinfo/systems/WHO_MBHSS_2010_full_web.pdf).

WHO (2010e). Strengthening the capacity of governments to constructively engage the private sector in providing essential health-care services. Report by the Secretariat (http://apps.who.int/gb/ebwha/pdf_files/WHA63/A63_25-en.pdf).

WHO (2010f). Models and tools for health workforce planning and projections. Human Resources for Health Observer Issue No. 3 (http://apps.who.int/iris/bitstream/10665/44263/1/9789241599016_eng.pdf).

WHO (2011). Transformative scale up of health professional education. An effort to increase the number of health professionals and to strengthen their impact on population health (http://apps.who.int/iris/bitstream/10665/70573/1/WHO_HSS_HRH_HEP2011.01_eng.pdf).

WHO (2013a). Road map for scaling up the human resources for health in the African Region 2012–2025. African Health Monitor, November 2013 (<https://www.who.int/sites/default/files/ahm/reports/756/ahm-18-05-road-map-scaling-human-resources-health-2012-2025.pdf>).

WHO (2013b). Guidelines for transforming and scaling up health professionals education and training. Policy brief on regulation of health professionals education (http://whoeducationguidelines.org/sites/default/files/uploads/whoeduguidelines_PolicyBrief_Regulation.pdf).

WHO (2013c). World Health Assembly resolution 66.23: Transforming health workforce education in support of universal health coverage (http://apps.who.int/gb/ebwha/pdf_files/WHA66/A66_R23-en.pdf).

WHO (2015a). Global strategy on human resources for health: Workforce 2030 (<http://who.int/hrh/resources/globstrathrh-2030/en/>)

WHO (2015b). Global strategy on people-centred and integrated health services: Interim report (http://apps.who.int/iris/bitstream/10665/155002/1/WHO_HIS_SDS_2015.6_eng.pdf?ua=1).

WHO (2015c). Global reference list of 100 core health indicators (<http://www.who.int/iris/handle/10665/173589>).

WHO (2015d). National reporting instrument for the WHO Code (http://www.who.int/hrh/migration/code/code_nri/en).

WHO (2015e). Synthesis paper of the thematic working groups – Towards a global strategy on human resources for health (http://www.who.int/hrh/documents/15-295Strategy_Report-04_24_2015.pdf?ua=1).

WHO (2015f). Human resources for health information system: Minimum data set for health workforce registry (http://www.who.int/hrh/statistics/minimun_data_set.pdf?ua=1).

WHO (2015g). Workload indicators on staffing needs (WISN) – User’s manual (http://www.who.int/hrh/resources/WISN_Eng_UsersManual.pdf?ua=1).

WHO (2016a). International Health Regulations (http://www.who.int/topics/international_health_regulations/en/).

WHO (2016b). Joint external evaluation tool: International Health Regulations (2005) (<http://apps.who.int/iris/handle/10665/204368>)

WHO Regional Office for Africa (2013). Road map for scaling up the human resources for health in the African Region 2012–2025 (<http://www.afro.who.int/en/clusters-a-programmes/hss/human-resources-for-health/hrh-publications/4806-road-map-for-scaling-up-the-human-resources-for-health-for-improved-health-service-delivery-in-the-african-region-20122025.html>).

WHO Regional Office for the Eastern Mediterranean (2011). Eastern Mediterranean regional standards for accreditation of health professions education (https://www.academia.edu/19747161/2011_Eastern_Mediterranean_Regional_Standards_for_Accreditation_of_Health_Professions_Education).

WHO Regional Office for the Eastern Mediterranean (2015a). Review of medical education in the Eastern Mediterranean Region: challenges, priorities and a framework for action (http://applications.emro.who.int/docs/RC_technical_papers_2015_3_16503_EN.pdf).

WHO Regional Office for the Eastern Mediterranean (2015b). Review of medical education in the Eastern Mediterranean Region: challenges, priorities and a framework for action. Report by the Secretariat (http://applications.emro.who.int/docs/RC_technical_papers_2015_3_16503_EN.pdf?ua=1%20&ua=1).

WHO Regional Office for Europe (2014a). Addressing needs in the public health workforce in Europe. Authors: Bjegovic-Mikanovic V et al. (http://www.euro.who.int/__data/assets/pdf_file/0003/248304/Addressing-needs-in-the-public-health-workforce-in-Europe.pdf).

WHO Regional Office for Europe (2014b). The costs of training health professionals in The Republic of Moldova (http://www.euro.who.int/__data/assets/pdf_file/0016/251170/The-costs-of-training-health-professionals-in-the-Republic-of-Moldova-Eng.pdf).

WHO Regional Office for Europe main terminology (<http://www.euro.who.int/en/health-topics/Health-systems/primary-health-care/main-terminology>).

WHO Regional Office for the Western Pacific (2007). Regional strategy on human resources for health 2006–2015 (http://www.wpro.who.int/publications/PUB_978_92_9061_2445/en/).

WHO, World Bank (2015). Tracking universal health coverage: First global monitoring report (http://apps.who.int/iris/bitstream/10665/174536/1/9789241564977_eng.pdf).

WHO, World Bank, USAID (2009). Handbook on monitoring and evaluation of human resources for health with special applications for low- and middle-income countries (http://apps.who.int/iris/bitstream/10665/44097/1/9789241547703_eng.pdf).

WHO, World Federation for Medical Education (2004). Task Force on Accreditation. Accreditation of medical institutions (http://www.who.int/hrh/documents/WFME_report.pdf).

World Bank Service Delivery Indicators (SDI) (www.sdindicators.org).

World Bank (2015a). The economics of health professional education and careers – Insights from a literature review. Authors: McPake B, Squires A, Mahat A & Araujo EC (<https://openknowledge.worldbank.org/bitstream/handle/10986/22576/9781464806162.pdf?sequence=1>).

World Bank (2015b). The health workforce in Latin America and the Caribbean: An analysis of Colombia, Costa Rica, Jamaica, Panama, Peru, and Uruguay (<http://documents.worldbank.org/curated/en/2015/06/24649973/health-workforce-latin-america-caribbean-analysis-colombia-costa-rica-jamaica-panama-peru-uruguay>).

