World Health Organization

National health workforce accounts: a handbook

Second edition

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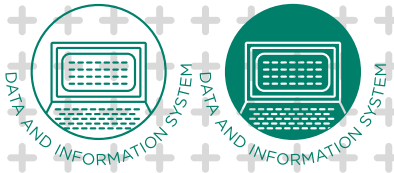

National health workforce accounts: a handbook, second edition

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Contents

Abbreviations and acronyms

AFRO	WHO Regional Office for Africa
CHW	Community health worker
CPD	Continuing professional development
EMRO	WHO Regional Office for the Eastern Mediterranean
EURO	WHO Regional Office for Europe
FETP	Field Epidemiology Training Program
GPW13	Thirteenth Global Programme of Work
GSHRH	Global Strategy on Human Resources for Health: Workforce 2030
HCW	Health and care worker
HIS	Health Information System
HLM	Health labour market
HRH	Human resources for health
HRHIS	Human resource for health information system
HWF	Health workforce
IHR	International Health Regulations
IA2030	Immunization Agenda 2030
ILO	International Labour Organization
ISCO	International Standard Classification of Occupations
ISIC	International Standard Industrial Classification
JEE	Joint External Evaluation
MDS	Minimum data set for health workforce registry
NHWA	National Health Workforce Accounts
NRI	National Reporting Instrument
OECD	Organisation for Economic Co-operation and Development
PAHO	WHO Regional Office for the Americas
PHC	Primary health care
SCI	Service coverage index (UHC)

SCORE	The SCORE for Health Data Technical Package: Survey-Count-Optimize-Review-Enable
SDGs	Sustainable Development Goals
SDNM	Global Strategic Directions for Nursing and Midwifery
SEARO	WHO Regional Office for South-East Asia
SNA	System of National Accounts
SPAR	State Party Self-Assessment Annual Reporting Tool
SSL	Support and safeguards list
TEG	Group of technical HRH experts
UHC	Universal health coverage
UN	United Nations
UNESCO	United Nations Educational, Scientific and Cultural Organization
W4H	Working for Health programme
WHO	World Health Organization
WISN	Workload Indicators of Staffing Need
WPRO	WHO Regional Office for the Western Pacific

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Foreword

Several years have passed since the launch of the National Health Workforce Accounts (NHWA) in 2017. And following a global pandemic that disrupted healthcare services worldwide, it is an opportune time to reflect on the progress, priorities, gaps, and adaptations of the NHWA. The NHWA has witnessed unprecedented engagement from countries, partners, and all three levels of the World Health Organization, with focal points nominated by most Member States (90%).

Thanks to collective efforts, there has been a significant improvement in the availability and quality of health workforce (HWF) data. Standardized measurement approaches, streamlined reporting mechanisms, and the involvement of multiple stakeholders from various sectors, including partner organizations, have played a vital role in this advancement. The data monitored and reported through NHWA has contributed to generating evidence on various policy issues, including HWF shortages, ageing, migration, and inequalities related to gender and subnational disparities. Furthermore, it has shed light on the significant contributions of the HWF in the response to the COVID-19 pandemic. NHWA has also facilitated the development of key global products, such as the State of the World's Nursing report, the State of the World's Midwifery report, as well as several national and regional reports.

Since 2017, the World Health Assembly has adopted a series of new resolutions highlighting HWF issues, such as the Strategic Directives on Nursing and Midwifery, the Working for Health Action Plan, and the Global Health and Care Worker Compact, to name a few. Additionally, the COVID-19 pandemic led to a greater recognition of the role of the HWF for universal health coverage (UHC) and health security. The development of the Roadmap for building national workforce capacity to deliver the essential public health functions, initiatives on non-communicable diseases, community health workers (CHWs), primary health care (PHC), and traditional and complementary medicine, all recognized the centrality of the health and care workforce as well as the need for data and evidence to inform policies and planning.

While ensuring continuity in the standardization of HWF statistics and maintaining the legacy of NHWA v1.0, this revision of NHWA incorporates necessary changes and adaptations to accommodate priority data needs for health and care workers (HCWs)-related new initiatives and challenges. The implementation of NHWA remains committed to core principles, which include a systems-strengthening approach, progressive implementation, multi-sectoral governance, and diversification of data sources. This revised version also provides more examples of NHWA data use.

We extend our utmost gratitude to all those who contributed to the assessment of version 1 and the development of the present revision. We hope that this revision will meet the needs of countries and assist them in addressing HWF challenges while making progress towards the 2030 Sustainable Development Goals.

What is new?

This revision of the NHWA incorporates several aspects beyond data and indicators: the evolution of the global health agenda since 2017, new indicators needed and revision of existing indicators, the evolution of the occupations' definitions, new tools and guidance.

The global health agenda has evolved drastically since the launch of NHWA, with the COVID-19 pandemic hitting the world in 2020 *(1)*. In addition to other recent emerging events with direct impact on health and healthcare – such as armed conflict, ecological crisis, zoonotic diseases – the global COVID-19 pandemic called for actions in the field of emergency preparedness and response and through a One Health approach *(2)*. As a consequence, there is an increased need for strengthening the public health and emergency workforce. In 2022, a Roadmap was established in partnership with associations, institutions and schools of public health (as represented by their respective national, regional and global bodies) with an objective to better monitor and plan for the workforce involved in the delivery of the essential public health functions, including emergency preparedness and response *(3)*.

The NHWA improves HWF data and evidence at national, regional and global level. Through the measurement of HWF data in successive years, there is now a better understanding of the HWF challenges. At the mid-way of the UN SDGs era, although progress was observed, there is still a projected global HWF shortage of 10 million health and care workers (HCWs) by 2030 *(3)*. This improved data is thanks to the contributions of the NHWA focal points of each country, with currently 181 countries, territories and areas having a nominated focal point. This rapid implementation of NHWA in countries, and the active participation of WHO regional offices and country focal points, enabled identification of areas for improvement in the implementation and the tools and guidance on NHWA.

To address the new challenges on the global health agenda, a series of programmes, directions, tools and guidance were developed. The fourth and fifth Global Forums on Human Resources for Health in Dublin (2017) and Geneva (2023) enabled identification of key policy priorities to improve the health and care workforce. The World Health Assembly also took actions on protecting, safeguarding and investing in the health and care workforce *(4)* with adoption of the Working for Health programme *(5)*. The WHO developed the Global Strategic Directions on Nursing and Midwifery (SDNM) *(6)*, through actions required to develop and strengthen CHWs, and through the development of a Global Health and Care Worker Compact *(7)*. All these actions need monitoring frameworks, which have been incorporated through improvement of designated indicators and health occupations in this revision of NHWA. NHWA focal points and an expert advisory group recommended to reduce and rationalize the number of indicators while maintaining most key content from NHWA v1.0.

This revision of NHWA implied changes and optimization of indicators while maintaining the presence of core indicators and the continuity with version 1. Based on requests from various stakeholders and NHWA focal points, a particular effort was made to reduce the overall number of indicators and modules. The NHWA version 2 now has four modules: module 1 on stock and flow, module 2 on education, module 3 on finance and expenditures, and module 4 on working conditions, governance and leadership.

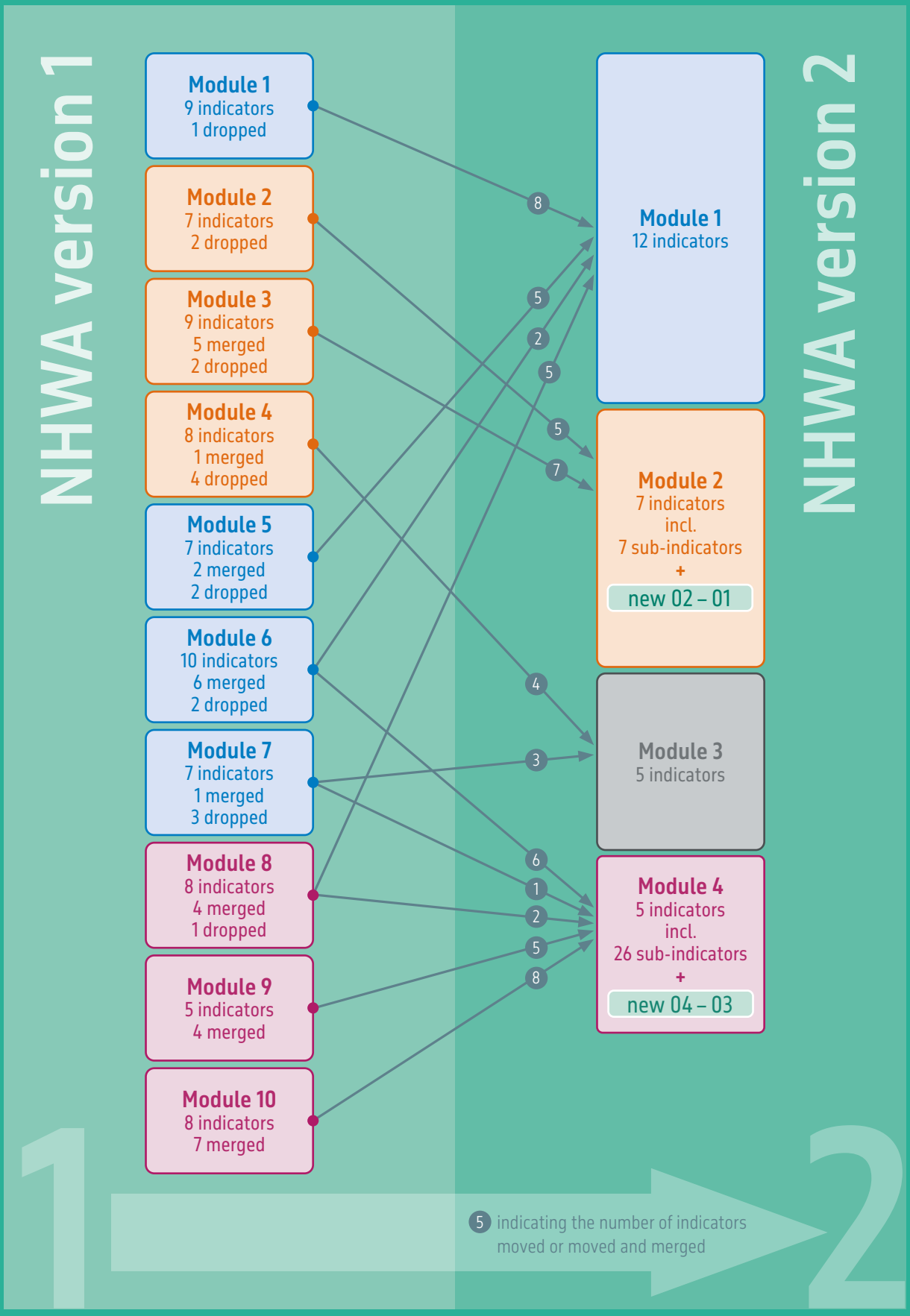
Overall, about 80% of the information in NHWA version 1 is still present in NHWA version 2 (**Figure 1**). Out of the 78 indicators present in the NHWA version 1, 16 indicators were dropped, and 2 new indicators were added: the HWF education and training capacity, and the share of women in leadership role. As compared to NHWA version 1, several optimizations were identified to simplify the presentation of indicators such as: removing redundancies, when possible defining disaggregation instead of separate indicators, grouping capacity questions (with single answers such as: yes, partial, no) into a single composite indicator. All these optimizations enabled to compact NHWA into 29 indicators. To facilitate the update of national systems to NHWA version 2, bridging tables have been developed.

The list of HCW occupations was revised to include all occupations regularly reported through the NHWA over the past five years following the International Standard of Occupations (ISCO-08) classification. The list of occupations was expanded for some occupational groups to account for feedback received throughout the years on NHWA v1.0.

Lastly, all tools available for policy makers, for NHWA focal points, and researchers have been updated. The NHWA data platform for focal points is aligned with the revised indicators and occupations, while the public data portal is updated to include additional features for users such as a searchable online handbook, and a repository of HWF-related national, regional and global documents such as national human resources for health (HRH) plans.

Figure 1. NHWA version 2 includes 80% of information from NHWA version 1

Out of 78 indicators in NHWA V1, 62 were maintained, 16 were dropped and 2 new indicators were added.



Note: Highlighted in green are two new indicators included in NHWA version 2. Please check details of moved, merged and dropped indicators in the bridging table included in part III of this report.

Part I

National Health Workforce Accounts in context

Global context on health and care workers

A health workforce (HWF) of adequate size and skill mix is critical to the attainment of any population health goal. This includes the achievement of universal health coverage (UHC) *(8)* and the health-related targets of the United Nations Sustainable Development Goals (SDGs). Yet countries globally are affected by multifaceted challenges, such as difficulties in HWF education and training, deployment, performance and retention *(9)*. Suboptimal allocation of health workers is one of the main challenges that directly influences the availability, accessibility, quality and performance of national health services *(10)*, and may leave populations with inadequate access to the health services they need. Therefore, the World Health Organization (WHO) and its partners developed the Global Strategy on Human Resources for Health: Workforce 2030 (GSHRH), which sets out the policy agenda to ensure a HWF that is fit for purpose to attain the targets of UHC and the SDGs *(9)*.

The GSHRH *(9)*, adopted by the Sixty-ninth World Health Assembly in May 2016 under resolution WHA69.19, aims to ensure universal accessibility, acceptability, coverage and quality of the HWF within strengthened health systems *(11)*. This can be achieved through adequate investments and the implementation of effective policies at national, regional and global levels. To realize this, the GSHRH presented multiple objectives, including one on strengthening data on human resources for health (HRH), as well as global milestones to be achieved by 2020 and 2030 respectively. Responsible change in any country will rely on the availability, completeness and quality of HWF data. Strengthening national human resources for health information systems (HRHIS) to collect and analyse reliable and up-to-date HWF data on stock, education, distribution, flows, demand, capacity and remuneration can drive evidence-based HWF planning and policy-making at national level.

In line with the GSHRH, the High-Level Commission on Health Employment and Economic Growth published *'Working for health and growth: investing in the health workforce'* *(12)*, a report and five-year action plan for health employment and inclusive economic growth. The three agencies that support the action plan are the International Labour Organization (ILO), the Organisation for Economic Co-operation and Development (OECD) and WHO. This report was reviewed by the Seventieth World Health Assembly, which recommended enforcement of the High-Level Commission's recommendations *(13)*. The High-Level Commission formulated its vision as follows: *"Accelerate progress towards universal health coverage and attaining the goals of the 2030 Agenda for Sustainable Development by ensuring equitable access to health workers within strengthened health systems".* This vision is translated into 10 recommendations to transform national HWFs for the SDGs, and to develop labour market policies accordingly. To enlarge and attain a fit-for-purpose HWF, coordinated actions across all sectors involved with the health labour market (HLM) are required. Accordingly, the Working for Health programme was established as a joint ILO-OECD-WHO partnership in 2017 to bring about measurable

action towards advancing UHC and making progress to achieve SDGs 3, 4, 5 and 8 (health, education, gender equality, decent work and economic growth) *(14)*. The report also highlighted the need for immediate action on HWF data and indicators as well as harmonized metrics and methodologies for robust research and analysis of HLMs in and among nations. The National Health Workforce Accounts (NHWA) supports countries to achieve this.

The global impact of COVID-19 between 2020 and 2023 has shown us the central role of the HWF in maintaining the delivery of essential health services as well as simultaneously managing the pandemic response. A series of global pulse surveys on the continuity of essential health services during the COVID-19 pandemic has consistently indicated that the lack of sufficient health workers was the most common cause of disruptions to essential health services as well as the biggest bottleneck to access to essential COVID-19 tools (including diagnostics, therapeutics and vaccines) *(15-18)*. The devastating impacts of the pandemic on countries across the world has highlighted the importance of developing an integrated multidisciplinary multisectoral workforce in every country that is capable of delivering all the essential public health functions, including emergency preparedness and response *(19)*.

Value of the NHWA

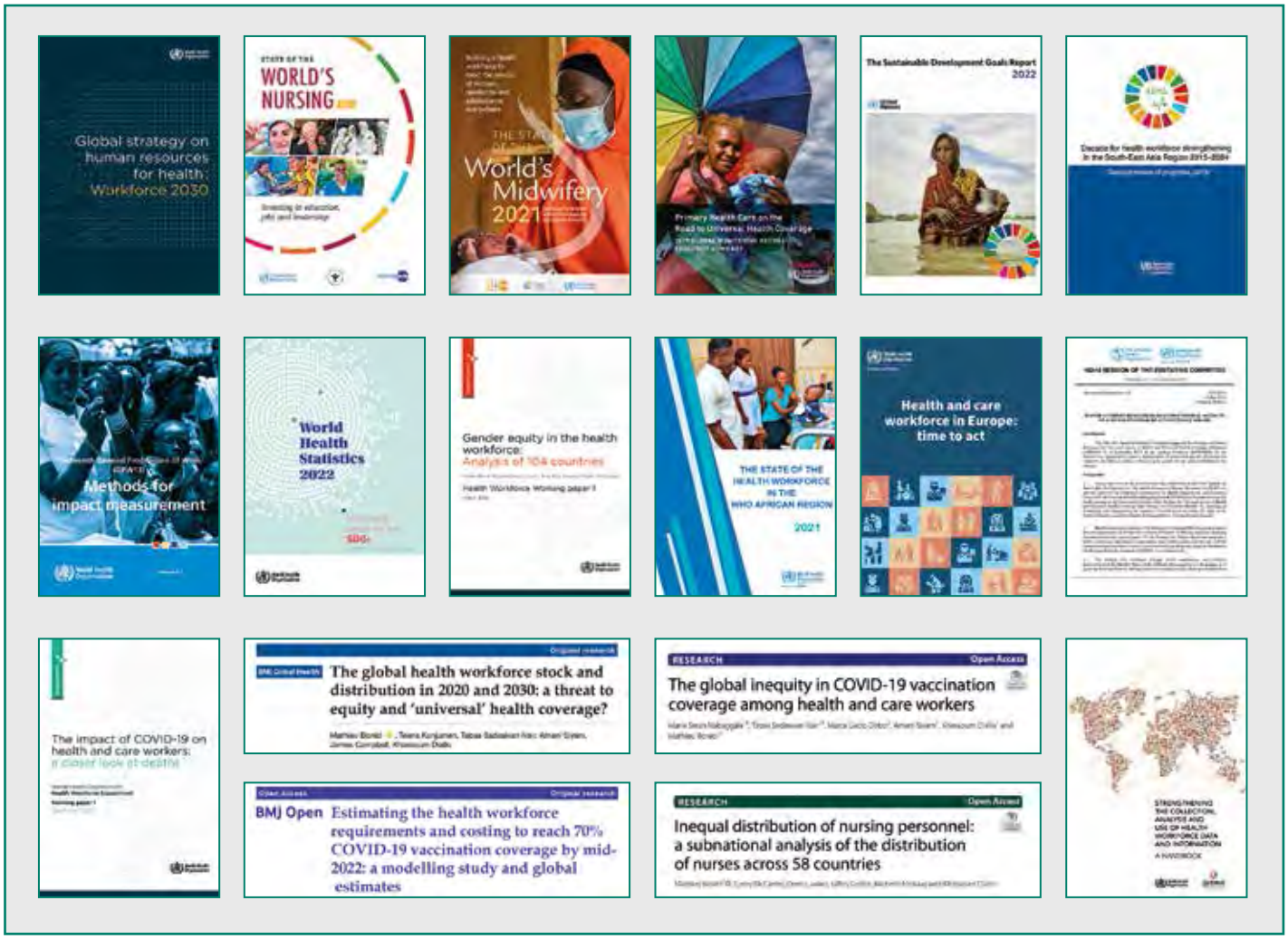
Applications at the global level

From the Action Plan of the High-Level Commission, and specifically the GSHRH, the concept of NHWA was clearly promoted as an important means to support countries in their national HWF policy and planning. The Sixty-ninth World Health Assembly adopted resolution WHA69.19 in support of its implementation *(11)*. The purpose of the NHWA is to facilitate the standardization of HRHIS for interoperability, i.e. the ability to exchange HWF data within broader subnational or national health information systems (HIS), as well as within international databases. In this way, rapid aggregation and display of HWF data for decision-making can be fully realized, and the NHWA can serve as a guiding and supporting tool for countries to inform national evidence-based HWF policy decisions.

Since the launch of the NHWA in 2017, there has been a tremendous improvement in global HWF data availability and quality. The NHWA has succeeded in its mandate of fostering a harmonized approach for annual and timely collection of HWF information and defining core indicators in support of strategic workforce planning and global monitoring. As of April 2023, 181 countries, territories and areas have appointed national focal points for annual reporting of HWF data on the NHWA data platform. Meanwhile, the NHWA data portal contains the latest available global HWF data for key indicators, country profiles, occupation profiles and other visualizations, and boasts more than 4 800 registered users *(20)*.

The NHWA data has been used to measure key characteristics of the global HWF and has been instrumental in the development of various seminal knowledge products *[3, 21-27]*. In addition, the NHWA has become a mechanism to monitor existing and upcoming global initiatives and frameworks such as the SDGs *[28]*, tracking of UHC *[29]*, the Thirteenth Global Programme of Work (GPW13) *[30]*, the WHO Global Code of Practice on the International Recruitment of Health Personnel *[31]*, the Global Strategic Directions for Nursing and Midwifery *[6]*, the Primary Health Care Measurement Framework *[32]*, the Working for Health programme *[5]*, the Global Health and Care Worker Compact *[7]*, the Immunization Agenda 2030 *[33]* and the Global Oral Health Action Plan *[26]*. Thus, the NHWA is being used to track and support countries' HWF efforts towards UHC, the SDGs and the global GSHRH milestones. In addition, data from the NHWA was also useful during the COVID-19 pandemic to estimate the deaths among health and care workers (HCWs) due to COVID-19 *[34]*, determine the surge workforce requirements for COVID-19 vaccination *[35]*, and monitor the global inequity in COVID-19 vaccination among HCWs *[36, 37]*. **Figure 2** illustrates various knowledge products using NHWA data.

Figure 2. NHWA data contributes to various knowledge products



Applications at the regional level

Through country reporting and international comparisons, the NHWA has also been able to facilitate comparability of the HWF landscape at regional level, facilitate cross-country capacity-building initiatives, information and knowledge exchange, developing regional HRH strategies or frameworks, and monitoring progress, as well as more sophisticated research about future HWF trends within and across systems. Thus, WHO regional offices have used the NHWA as an avenue to drive improved monitoring of the HWF across their respective countries *[38-40]*.

Applications at the national level

The NHWA indicators have been selected with clear policy relevance in mind, so that they can be used by any country according to its own specific needs. While designed to support a coherent framework for HWF policy analysis and design, the NHWA can be implemented and used in a flexible, modular way. It is important for countries to note that while the NHWA modules provide full coverage of indicators for all components and policy domains and form a natural whole across the HLM framework, there is also significant room for selecting country-specific indicators. As countries strongly differ in terms of the build-up of their education sector, HLM dynamics and health services, they will differ in their need to develop and conduct policies across these components. Hence, countries can select and prioritize NHWA modules according to their specific needs and goals at a given time, and eventually mature towards selecting and covering all NHWA indicators. This is not a goal in itself, however, and a flexible approach should always be adopted.

The NHWA is progressive in nature, so that some of the benefits for countries will be immediate, while others will become available over the longer term. The more indicators available at national and subnational level, the better the overview of the HWF landscape will be, along with the potential for more sophisticated analyses, more efficient HWF policies, and progress towards UHC. Over the last five years of NHWA implementation, countries have been able to use the NHWA to drive the HWF agenda at national level, by establishing multi-stakeholder governance mechanisms, in identifying diverse data sources and streamlining data flows, in strengthening national HRHIS, and in creating a culture of data use *[27]*.

Box 1 Application of NHWA implementation at national level

- A better understanding of the HWF, including its size, characteristics and distribution; from this, countries can generate insight into the needs and possibilities for strengthening their HWF.
- High-quality information on the HWF that informs evidence-based policy decisions according to country needs.
- An efficient HWF 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 HWF education and training in support of UHC.
- Strengthened policies, strategies and plans, through intersectoral policy dialogue among the relevant ministries, including those 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 HWF trends, and better, comprehensive HWF planning.

To conclude, the NHWA can inspire countries to address or reconsider major policy questions related to current HWF challenges and optimizing planning systems, such as:

- Is the current HWF available, accessible, acceptable and of the appropriate competencies to provide good quality health services?
- Can the current gaps be addressed by improving performance through better allocation of resources, through increasing productivity, through effective retention policies, and through effective public–private partnerships?
- Can the current gaps be addressed by increasing investments in education and production, and/or increasing in-migration?
- 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)?
- Can the production of health workers replace the health worker loss caused by exits? Can financial incentives for health workers stimulate them to settle in underserved areas and lead to a more balanced geographical distribution of the HWF across the country or region?

NHWA: concept and overview

Definition

The NHWA can be defined as – *"a system by which countries progressively improve the availability, quality, and use of data on health workforce through monitoring of a set of indicators to support achievement of Universal Health Coverage, Sustainable Development Goals and other health objectives".*

The underpinning framework

The concept of the NHWA is closely aligned with the HLM framework for UHC *(41)* (**Figure 3**), which also takes a central place in the High-Level Commission's report *'Working for health and growth: investing in the health workforce' (12)*. This framework provides a comprehensive picture of the education sector and HLM dynamics, in which the economy, population and society act as drivers to attaining UHC and optimal health-care services as the outcome. In this sense, the HLM framework offers tangible directions for countries in terms of HWF policies that may contribute to achieving the GSHRH milestones, UHC and the SDGs.

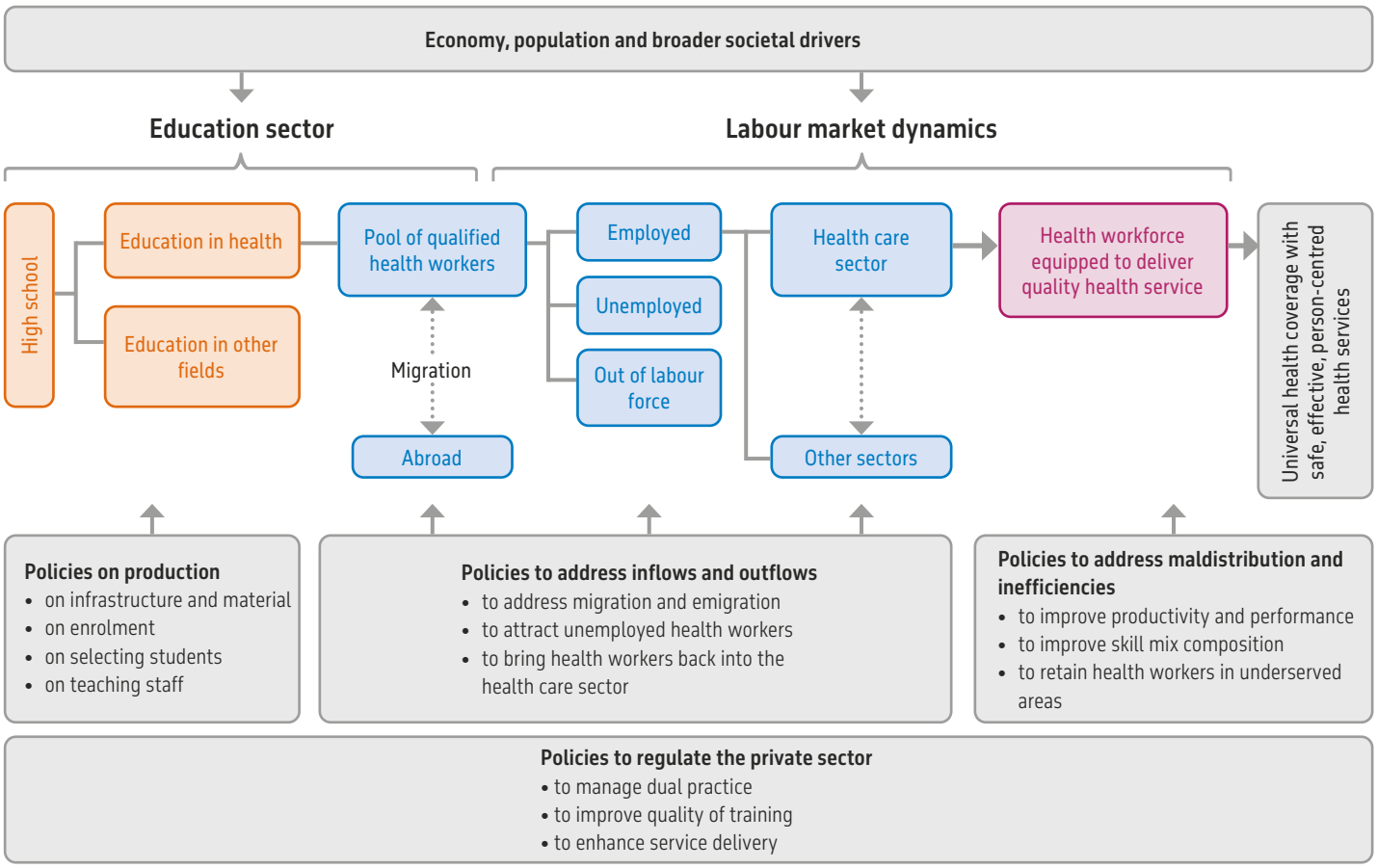
At the lower level of the framework, four specific groups of policies are included that can tackle HWF challenges and support attaining equitable access to quality health services:

1. Policies on production
2. Policies to address inflows and outflows
3. Policies to address maldistribution and inefficiencies
4. Policies to regulate the private sector.

The first three policies are related to different parts of the education sector and HLM dynamics and are interrelated in an 'input–throughput–output' sequence within the system. The policies to regulate the private sector cover the full scope of the HLM.

The development process of the NHWA and its revision is described in **Annex 1**.

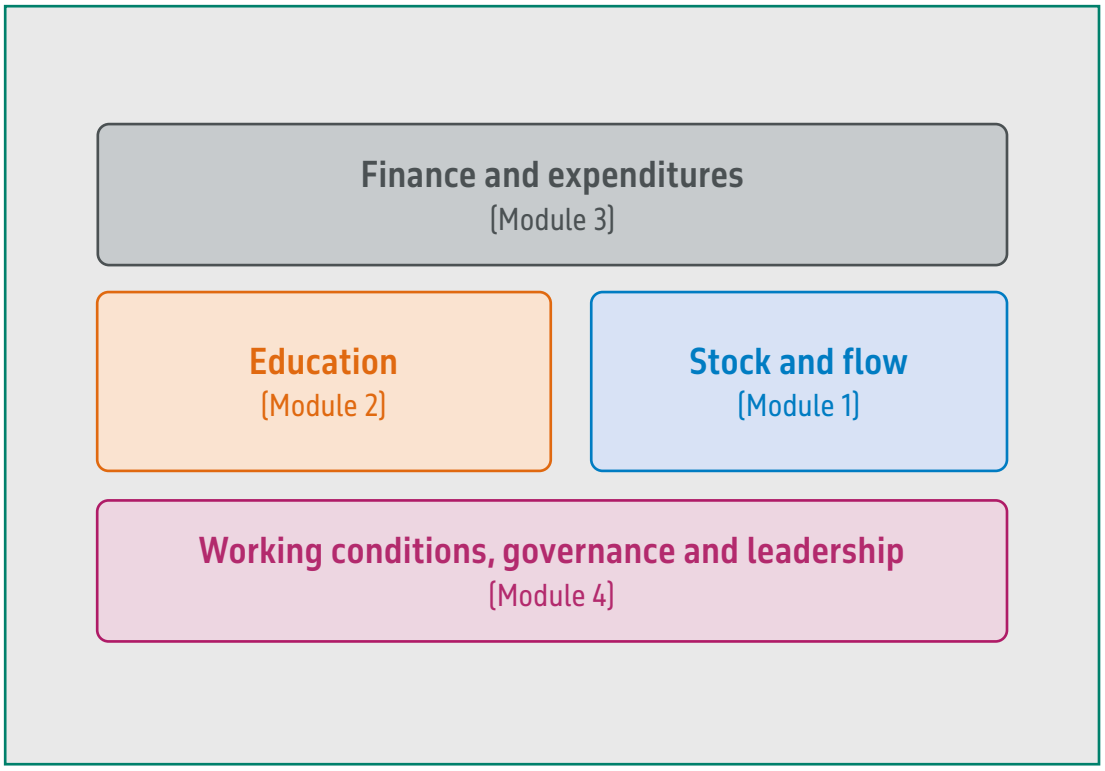
Figure 3: The health labour market framework



A modular approach

The NHWA contains a set of 29 indicators, spread over 4 modules, that aim to support national-level HWF policies to progress towards UHC and SDGs (**Figure 4**).

Figure 4: Overview of labour market components supported by the NHWA modules



The aim and content of each of the 4 modules are described in more detail below. **Module 1** is the key starting point to the NHWA framework, as it collects the most crucial information on the HWF.

Module 1: Stock and flow

This module provides a comprehensive overview of the composition and distribution of the HWF, and their participation in the HLM. Indicators are gathered on density at national level, distribution by age and by sex, institutional sector and facility types. 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, mismatches in geographical or sectoral distribution, and enables an understanding of occupational segregation by gender. Understanding HWF composition and distribution enables the planning and implementation of policy interventions on HWF education, retention, or reallocation of resources. Module 1 contains an indicator on the subnational distribution of health workers, which allows monitoring progress towards halving inequalities in access to a health worker (Global milestone 1, by 2030) *[9]*. Indicators on the share of foreign-trained and foreign-born health workers are also related to GSHRH, which targets that countries should make progress towards halving the dependency on foreign-trained health professionals through implementing

the WHO Global Code of Practice (Global milestone 3, by 2030) *[9, 31]*. Inflows to and outflows from the HLM are also measured in this module. The indicator on inflows differentiates the results of domestic replenishment efforts from dependency on foreign health workers, while the indicator on outflows monitors both voluntary and involuntary exits. Information about the balance of the HLM is gathered by tracking vacancies. A better understanding of the magnitude and the drivers of flows can provide a basis for effective recruitment and retention policies.

Module 2: Education

This module provides information on HWF education and training capacity, applications, enrolments, and graduations. Indicators are aligned with SDG 4 (Education) targets and indicators supporting intersectoral coordination, for example on gender equality (SDG 5). The module enables the planning and monitoring of policies on student selection and enrolment. This module also supports mechanisms to coordinate an intersectoral HWF agenda. Indicators based on education regulation provide information on quality assurance, and education and training requirements. Accreditation mechanisms and their standards are of key importance (Global milestone 4, by 2020) *[9]*, so that national education plans for the HWF are aligned with the national health plans to ensure that all health workers have the skills that match the needs of the population. These indicators can add information to enhance the quality and relevance of HWF education and training as well as to identify areas of intervention in the regulation or management of education and training.

Module 3: Finance and expenditure

This module seeks to support an effective financing architecture that strengthens intersectoral collaboration, particularly between health and education sectors, as well as map expenditures on the HWF and remunerations in the health sector, including an oversight of earnings in the private sector where relevant. These data can be used to advance understanding on targeted investments that promote equitable access to education, as well as to identify and commit adequate budgetary resources for investments in transformative education, skills and job creation. Data on these indicators can make an important contribution to decent work as promoted by SDG 8 and to gender equality under SDG 5. Moreover, economic analyses are crucial for budget negotiations with the government (e.g. ministries of finance, labour, education) as well as with private sector representatives.

Module 4: Working conditions, governance and leadership

This module includes indicators on working conditions, HWF governance and leadership capacity, and on the capacity of national HRHIS. The indicator on working conditions measures the existence of labour regulations and policies for HCWs and can serve as input for progressing towards decent work for all, as promoted by SDG 8. The indicator on HWF governance and leadership capacity assesses the existence of a central HRH unit and its capabilities in terms of planning and policy-making processes. This indicator is key to demonstrate whether the

country has mechanisms to effectively use and apply information collected under indicators in the other modules. The indicator on HRHIS capacity assesses the ability of the national HRHIS to monitor various characteristics that are relevant for workforce planning at national and/or subnational level (such as outputs from education and training institutions, entrants to the labour market, active stock on the labour market, exits from the labour market, geocoded location of health facilities, and the gender pay gap) as well as for global monitoring frameworks (such as the WHO Global Code of Practice and the International Health Regulations (IHR)).

All indicators in the 4 NHWA modules are specified in the descriptive pages with standard information.

Core principles of NHWA

The NWHA is beyond just a list of indicators; it is a system-strengthening approach to improve the collection, collation, analysis and use of HWF data and enable evidence-informed HWF planning and policy-making. By emphasizing national needs and interests, the NHWA keeps countries at the heart of the process and allows them to define the pace for progressive implementation. An inclusive multi-sectoral and multi-stakeholder governance mechanism at national level is critical for the implementation of the NHWA. By bringing different stakeholders together, it is possible to identify diverse data sources that are relevant for HWF planning and policymaking, standardize data collection methods across various stakeholders, foster partnerships to improve data availability, develop analytical products that are relevant for national contexts, catalyze data use for decision-making, raise awareness on HRH challenges and advocate for resource mobilization.

Box 2 Core principles of NHWA

The following principles represent the "DNA" of NHWA implementation:

- Multi-stakeholder and multi-sectoral governance mechanism of the NHWA data at national level
- System strengthening approach
- Progressive self-paced implementation
- Parsimonious approach to collecting validated indicators/proxies
- Inclusive country-owned and country-led (through the vital role of NHWA focal-points) process in prioritizing and reporting indicators and terminology at national level
- Continuous updating mechanism using valid, reliable and diverse data sources (no primary data collection)
- Annual data release

Part II

Implementation and methods

Implementation and use of the NHWA

Implementation of the NHWA

The NHWA contains indicators with clear policy relevance across the entire spectrum of HWF priorities and those related to the HLM framework. The implementation of the NHWA is a country-led activity, building on national systems and using existing mechanisms to coordinate data-gathering for the evaluation of the HWF.

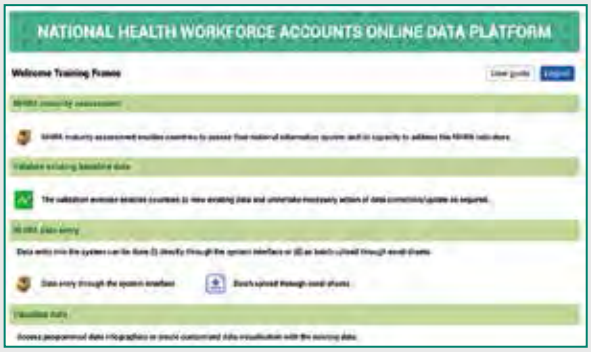
WHO has developed a set of tools to help countries implement the NHWA. These include, in addition to this Handbook, an implementation guide *(42)* and an online platform for data reporting and visualization, as well as an online data portal *(20)* where annually updated HWF data is made publicly available as a global public good to facilitate international comparisons (**Figure 5**).

Figure 5 – Overview of NHWA implementation tools

NHWA Handbook
Sets of standards and norms on health workforce indicators

NHWA implementation guide
Step by step implementation for policy makers

NHWA web platform
Online platform for NHWA focal points to monitor and report their HWF statistics



NHWA data portal
Public portal with data validated by countries

The WHO regional offices can provide direct support in the implementation of the NHWA and respond to queries from countries in their region. The Health Workforce Department at WHO headquarters can also provide support to countries; queries or feedback on NHWA can be sent by email to hrhstatistics@who.int.

Potential use of the NHWA

As described in the metadata sheets in **Part III**, the NHWA includes both numeric and 'capability' indicators that provide information on regulation and other mechanisms related to the HWF. Tangible examples on what implementation of the NHWA can mean for countries, and how it can support them in policy-making at national level, are provided in **Part IV**.

It is implicit that the availability of the institutional processes, plans and units listed in **indicator 4-02** (HWF governance and leadership capacity) maximizes in each case the use of the indicators in a policy relevant direction. In addition, elements listed in **indicator 4-05** address the national capacity to monitor key metrics for HWF planning and global monitoring frameworks.

Methods for computing indicators

Computation of densities

The density of HCWs is expressed per 10 000 population. It uses the stock of health workers divided by the size of the population multiplied by 10 000. The definition of the stock can vary and the preferred stock statistic is the number of practicing workers of the relevant occupation, i.e. those who are directly providing services to or for patients and communities, for which they received the corresponding training. When data with this definition are not available, then the alternative could be to use statistics on professionally active HCWs. These include practising workers as well as those who are directly not providing services but for whom their medical or paramedical education is a prerequisite for the execution of the job (e.g. education, research, public administration). If statistics are available for neither practicing nor professionally active workers, then data on HCWs licensed to practice could be used. These include all personnel who are registered and entitled to practice. Note that these data can sometimes include unemployed workers or workers who migrated. These data are therefore to be considered with caution as they may overestimate the actual size of the workforce delivering health and care services *(43)*.

For global reporting, the mid-year population estimates from the latest revision of the World Population Prospects from the UN Population Division *(44)* are used as denominator.

Computation of statistics on distribution of HCWs

Several indicators in module 1 are based on the distribution of health workers such as age, sex, place of birth, place of training, facility ownership, and facility type. Each of these indicators are different disaggregates and they need to be reported completely and not partially. Indeed, while it could seem tempting to report one single disaggregate and rely on the total for the denominator, this could create discrepancies due to varying data sources. For example, to estimate the share of women, one could monitor and report only the stock of women and divide it by the total number of health workers. However, the sources of data for total and gender data are very frequently different. The total could be originated from a main national licensing system while the share of men and women (if not available in the licensing system) could be extracted from a labour force survey. In this situation, the numerator and denominator could have different properties (coverage, completeness, precision, etc.). To ensure consistency between numerator and denominator for each indicator on distribution, it is therefore suggested to report all disaggregates for the specific indicator and to only use this reported data for computing the indicator. For a distribution with n disaggregates, the percentage of disaggregate a could be expressed as:

$$Percentage\ (a) = \frac{Stock_a}{\sum_{x=1}^{n} Stock_x} \times 100$$

Computation of scores

Four indicators of NHWA version 2 are based on a series of sub-indicators. The answer (yes, partial, no) to these sub-indicators results in a score that summarizes how much progress the country has made on the specific thematic. For each of these indicators, a score defined from 0 to 5 will be computed if data are reported for at least 4 sub-indicators. For each sub-question, a "yes" response will provide 1 point, "partial" 0.5 points, and "no" 0 point. The sum of points from all sub-indicators will be computed and expressed on a scale from 0 to 5. The rounded value will then be compared to the following table and classified with categories similar to those used in WHO SCORE system *(45)* as follows:

Value of average score	Classification
4.5 to 5	Sustainable
3.5 to 4.4	Well-developed
2.5 to 3.4	Moderate
1.5 to 2.4	Limited
< 1.5	Nascent
Data not reported for at least 4 sub-indicators	Not reported

For example, for an indicator with 9 sub-indicators, 5 being reported as "Yes", 2 being reported as "Partial", 1 reported as "No" and 1 not reported. The overall number of sub-indicators with a response provided is 8 so there are at least 4 sub-indicators and a score can be computed. The sum of points is therefore 5x1 + 2x0.5 = 6 points out of the 8 reported sub-indicators. Expressed on a scale from 0 to 5, the score would be 6 (points) x 5 (scale) /8 (number of sub-indicators reported) = 3.75. With a computed score of 3.75, the country would be classified as "Well-developed" for this indicator.

In case some sub-indicators have disaggregation by occupation, a first average will be made at the sub-indicator level, using only reported categories, before being used in the computation. For example, for a sub-indicator on medical doctors reported as "Yes", nursing personnel as "Partial", midwifery personnel as "Partial", dentists reported as "No" and pharmacists not reported, the average point for this sub-indicator would be (1+0.5+0.5+0)/4 = 0.5 points.

Annual measurement

The monitoring of indicators in the NHWA is expected to occur on an annual basis, although more regular monitoring schemes are possible. This implies reporting on indicators to cover a period of one calendar year. Where data reporting is expected less regularly, this is marked in the individual indicator descriptive sheets.

Measurements may be performed using three different time frames.

Cross-sectional

Such measurement provides a snapshot of a metric for a specific year, as at the end of the year. For example, the density of health workers metric for 2022 corresponds to the density of workers on 31 December 2022.

Cumulative

Such metrics are accumulated throughout a year and correspond to the cumulative sum of a variable observed from 1 January to 31 December. For example, the total expenditure on the health workforce in 2022 supposes the sum of all HWF expenditures in 2022, i.e. all expenditures from 1 January to 31 December 2022 should be included.

Measurement of flows of individuals from a cohort

Indicators including the notion of flow have to be considered carefully, particularly for the definition of the denominator to use. For these indicators, the cohort to which the indicator belongs should be defined. For inflow, the denominator should be defined at the end of the year as the entrants belong to the cohort measurable at the end of the period. For outflow, the denominator should be defined at the beginning of the year as the exits belong to the cohort observed at the beginning of the year.

For example, the entry rate in the labour market in 2022 corresponds to health workers entering between 1 January and 31 December 2022. The cohort to be used as the denominator should therefore be the number of active health workers as of 31 December 2022 because the newcomers belong to this cohort and were not part of the cohort of workers as of 31 December 2021.

In contrast, the exit rate of workers in 2022 corresponds to health workers leaving the health system between 1 January and 31 December 2022. The cohort to be used in this case is the number of active workers as of the preceding year, i.e. 31 December 2021, because those who exit no longer belong to the cohort of workers observed as at 31 December 2022.

Level of disaggregation

At least one level of disaggregation is necessary to describe each indicator. Disaggregation factors with a specific definition to enable harmonization of data gathering have been proposed for each indicator. The standard use of a comma "," or of the word "and" is proposed in the present document to distinguish between single and multiple levels of disaggregation. A comma "," between two or more factors indicates that the stratification is to be conducted independently of each factor. An "and" indicates that the stratification is to be conducted jointly on two (or more) factors.

For example, disaggregation "by occupation, by occupation and age" should be read as: first a disaggregation by occupation only, which corresponds to summarizing the indicator in a column; second, a disaggregation combining information on occupation and age, which corresponds to summarizing this indicator in a table with occupation in rows and age groups in columns.

Disaggregation proposed in the Handbook are ordered by level of complexity, and it is expected that the first level of disaggregation is initially monitored. Progressive implementation of the NHWA will enable the monitoring and reporting of more complex levels of disaggregation. For instance, a disaggregation "by occupation, by occupation and sex, by occupation and subnational level" could be first implemented "by occupation", then "by occupation and sex", and "by occupation and subnational level" implemented in subsequent years when data become available.

Disaggregation by subnational level

For some indicators, a disaggregation by subnational level is indicated. These subnational levels should be defined according to Member States' needs. The use of a disaggregation based on administrative units down to the first or second subnational level is recommended (depending on the structure of administrative units and the size of subnational territories), without overlaps between the administrative units. Examples of subnational administrative units are states, regions, provinces, counties, and districts.

Currency

Several indicators cover financial information available from HLM data. Such indicators can be collected at national level using the official currency in a specific country. However, for information reported at international level, currencies should be standardized to the US$. The United Nations Treasury provides operational rates of exchange (https://treasury.un.org/) for the conversion of currencies, with monthly rates reported for each country for the 10 preceding years. For indicators reported as a sum over a whole year, the mid-year conversion rate should be used.

Population estimates

Several indicators are expressed as density computed with a population size as denominator. Such population size data would usually be reported by national statistical offices based on census data or inter-census estimates. For the purposes of international comparisons, standard population estimates will be used instead of national estimates, such as the mid-year population estimates from the World Population Prospects published by the United Nations Population Division *(44)*. Therefore, only the numerator data for these indicators are to be recorded by NHWA focal points.

List of occupations

Throughout the Handbook, indicators for the NHWA are defined by occupations of the HWF. It is strongly recommended to use occupation definitions following the most recent international classification. The proposed list of occupations in **Annex 2** is based on the ISCO-08 *(46)*. Countries are encouraged to register detailed information at the unit level of ISCO-08 (4-digit level) to better inform on HWF statistics. The WHO recommends using additional categories and sub-categories for classifying some HCWs, such as for specialist medical practitioners, epidemiologists etc.

The NHWA primarily focuses on HCWs – this includes personal care workers as well as health management and support workers.

Deviation from definitions

The NHWA indicator definitions and calculation methods are based on agreed international classifications when available. However, as data availability and definitions used at national level may vary, Member States are encouraged to report data even in cases where it is not possible to follow the methodology stated in NHWA Handbook. In such cases, the deviation from the standard definition should be noted, and a detailed description of the methodology used should be reported.

Part III

NHWA Indicators

Synthesis of indicators

Module 1 – Stock and flow					
Indicator Number	Indicator abbreviated name	Indicator full name	Numerator	Denominator	Disaggregation
1-01	Health worker* density	Density of health workers per 10 000 population	Number of active health workers, defined in headcounts	Total population**	By occupation, by occupation and activity level
1-02	Health worker density at subnational level	Density of active health workers per 10 000 population at subnational level	Number of active health workers in level 1 subnational administrative units	Total population at subnational level	By occupation
1-03	Health worker distribution by age group	Percentage of active health workers in different age groups	Number of active health workers in age group categories	Total number of active health workers, defined in headcounts	By occupation, by occupation and sex
1-04	Health worker distribution by sex	Percentage of active health workers by sex	Number of active health workers in sex categories	Total number of active male and female health workers, defined in headcounts	By occupation
1-05	Health worker distribution by facility ownership	Percentage of active health workers employed by facility ownership	Number of active health workers, defined in headcounts, working in facilities owned by the given institutional sector (public or private not-for-profit or private for-profit)	Total number of active health workers, defined in headcounts	By occupation
1-06	Health worker distribution by facility type	Percentage of active health workers employed by facility type	Number of active health workers, defined in headcounts, working in a specific facility type	Total number of active health workers, defined in headcounts	By occupation
1-07	Health worker distribution by place of birth	Percentage of active health workers by their place of birth	Number of active health workers by place of birth	Total number of active health workers, defined in headcounts	By occupation
1-08	Health worker distribution by place of training	Percentage of active health workers by their place of training	Number of active health workers by place of training	Total number of active health workers, defined in headcounts	By occupation, by occupation and country of training among foreign-trained, by occupation and place of birth among foreign-trained

Module 1 – Stock and flow					
Indicator Number	Indicator abbreviated name	Indicator full name	Numerator	Denominator	Disaggregation
1-09	Annual inflows of health workers	Ratio of newly active health workers to the total stock of active health workers	Number of newly active health workers	Total number of active health workers, defined in headcounts	By occupation, by occupation and place of training, by occupation, place of training and sex
1-10	Annual outflows of health workers	Ratio of active health workers leaving the health labour market to the total stock of active health workers	Number of health workers who became inactive in the health labour market	Total number of active health workers, defined in headcounts	By occupation, by occupation and type of exit (voluntary/involuntary), by occupation, type of exit and sex
1-11	Vacancy rate	Ratio of unfilled posts to total number of funded posts	Number of funded full-time posts that have not been filled for at least twelve months	Total number of funded full-time posts (filled and unfilled)	By occupation
1-12	Health worker distribution by type of contract	Percentage of active health workers by their type of contract	Number of active health workers in specific types of contracts (full-time vs part-time)	Total number of active health workers, defined in headcounts	By occupation

* Health workers refers to all occupations of the health and care workforce listed in Annex 2

** Total population from World Population Prospects published by the Population Division of the United Nations Department of Economic and Social Affairs

Module 2 – Education					
Indicator Number	Indicator abbreviated name	Indicator full name	Numerator	Denominator	Disaggregation
2-01	Health workforce education and training capacity	Ratio of health workforce education and training capacity per 10 000 population	Number of places in health education and training institutions	Total population	By health workforce education and training programme
2-02	Ratio of applications to education and training capacity	Ratio of applications for health workforce education and training to the training capacity	Number of applications for the first year of a health workforce education and training programme	Total number of places available in the first year of a health workforce education and training programme	By health workforce education and training programme, by health workforce education and training programme and sex
2-03	Ratio of enrolments to applications	Ratio of students enrolled in the first year of health workforce education and training programmes to the applications for these programmes	Total number of enrolments in the first year of a health workforce education and training programme	Total number of applications for the first year of a health workforce education and training programme	By health workforce education and training programme, by health workforce education and training programme and sex
2-04	Ratio of graduates to stock	Ratio of graduates of health workforce education and training programmes to the stock of active health workers	Number of graduates from a cohort of a health workforce education and training programme	Number of active health workers, defined in headcounts	By health workforce education and training programme, by health workforce education and training programme and sex, by health workforce education and training programme and health education and training institution ownership (public/private)
2-05	Duration of education and training	Duration of health workforce education and training programmes, in years	Not applicable		By health workforce education and training programme
2-06	Accreditation mechanisms for education and training institutions and their programmes	Existence of national and/or subnational mechanisms for accreditation of health workforce education and training institutions and their programmes (Yes/Partial/No)	Not applicable		By health workforce education and training programme

Module 2 – Education					
Indicator Number	Indicator abbreviated name	Indicator full name	Numerator	Denominator	Disaggregation
2-07	Standards for education and training programmes	Existence of standards for education and training programmes	Sub-indicators: 2-07.1 Existence of national and/or subnational standards for social accountability in accreditation mechanisms of training programmes (Yes/Partial/No) 2-07.2 Existence of national and/or subnational standards for the social determinants of health in accreditation mechanisms of training programmes (Yes/Partial/No) 2-07.3 Existence of national and/or subnational standards for interprofessional education in accreditation mechanisms of training programmes (Yes/Partial/No) 2-07.4 Existence of cooperation between health workforce education and training institutions and regulatory bodies to agree on accreditation standards (Yes/Partial/No) 2-07.5 Existence of national systems for continuing professional development (Yes/Partial/No) 2-07.6 Existence of in-service training as an element of national education plans for the health workforce (Yes/Partial/No) 2-07.7 Existence of national and/or subnational standards for community health workers' curriculum (Yes/Partial/No/Not applicable)		By health workforce education and training programme (for all but last sub-indicator 2-07.7)

Module 3 – Finance and expenditures					
Indicator Number	Indicator abbreviated name	Indicator full name	Numerator	Denominator	Disaggregation
3-01	Expenditure on compensation of health workers	Total expenditure on compensation of health workers	Not applicable		By public/ private
3-02	Entry-level wages and salaries	Average entry-level wage and salary excluding social contributions	Not applicable		By occupation, by occupation and public/private
3-03	Total expenditure on health workforce education	Total expenditure on health workforce pre-service education (current and capital)	Not applicable		By health workforce education and training programme, by health workforce education and training programme and institution ownership (public/private)
3-04	Expenditure per graduate on health workforce education	Expenditure per graduate of health workforce education and training programme	Total expenditure on health workforce education	Total number of graduates from health workforce education and training programmes	By health workforce education and training programme, by health workforce education and training programme and institution ownership (public/private)
3-05	Average tuition fee per student	Average annual tuition fee per student enrolled in health workforce education and training programmes	Total tuition fees paid by students enrolled in health workforce education and training programmes for a given year	Total number of students enrolled in health workforce education and training programmes	By health workforce education and training programme

Module 4 – Working conditions, governance, and leadership					
Indicator Number	**Indicator abbreviated name**	**Indicator full name**	**Numerator**	**Denominator**	**Disaggregation**
4-01	Labour regulations and policies for health workforce	Existence of labour regulations and policies on the employment characteristics, protection and working conditions of the health workforce	Sub-indicators: 4-01.1 Existence of national/subnational policies/laws regulating working hours and conditions (Yes/Partial/No) 4-01.2 Existence of national/subnational policies/laws regulating minimum wage (Yes/Partial/No) 4-01.3 Existence of national/subnational policies/laws regulating social protection (Yes/Partial/No) 4-01.4 Existence of national/subnational policies/laws regulating dual practice (Yes/Partial/No) 4-01.5 Existence of national/subnational policies/laws regulating compulsory service (Yes/Partial/No) 4-01.6 Existence of national/subnational policies/laws for prevention of attacks on health workers (Yes/Partial/No) 4-01.7 Existence of national/subnational care packages for mental well-being of health workers (Yes/Partial/No) 4-01.8 Existence of mechanisms for in-kind renumeration to promote rural retention (Yes/Partial/No) 4-01.9 Existence of regulatory mechanisms for promoting health worker safety (Yes/Partial/No) 4-01.10 Existence of regulatory mechanisms to ensure oversight of the activities of health workers within the private sector (Yes/Partial/No) 4-01.11 Existence of remuneration of community health workers through salary (Yes/Partial/No/Not applicable) 4-01.12 Existence of advanced nursing roles (Yes/Partial/No)		Not applicable

Module 4 – Working conditions, governance, and leadership					
Indicator Number	**Indicator abbreviated name**	**Indicator full name**	**Numerator**	**Denominator**	**Disaggregation**
4-02	Health workforce governance and leadership capacity	Existence of health workforce governance and leadership capacity at national and/or subnational levels	Sub-indicators: 4-02.1 Existence of institutional mechanisms or bodies to coordinate an intersectoral health workforce agenda (Yes/Partial/No) 4-02.2 Existence of a health workforce unit in the Ministry of Health responsible for developing and monitoring policies and plans on health workforce (Yes/Partial/No) 4-02.3 Existence of mechanisms and models for health workforce planning (Yes/Partial/No) 4-02.4 Existence of national education plans for the health workforce, aligned with the national health plan and the national health workforce strategy/plan (Yes/Partial/No) 4-02.5 Existence of institutional models for assessing and monitoring staffing needs for health service delivery (Yes/Partial/No)		Not applicable
4-03	Share of women in leadership role	Share of women in senior management positions in the Ministry of Health	Number of women in leadership roles in the Ministry of Health, defined in headcounts	Total number of men and women in leadership roles in the Ministry of Health, defined in headcounts	Not applicable
4-04	International Health Regulations implementation capacity	Availability of human resources to implement International Health Regulation core capacity requirements (None/Limited/ Developed/ Demonstrated/ Sustainable)	Not applicable		Not applicable

Module 4 – Working conditions, governance, and leadership					
Indicator Number	**Indicator abbreviated name**	**Indicator full name**	**Numerator**	**Denominator**	**Disaggregation**
4-05	National capacity to monitor key metrics for health workforce planning and global monitoring frameworks	Capacity of national human resources for health information systems to monitor key metrics relevant for national health workforce planning and policy-making and for global monitoring frameworks	Sub-indicators: 4-05.1 Ability of HIS to report on HRH data (Yes/Partial/No/ Not applicable) 4-05.2 Ability of HRHIS (or other mechanism) to generate information to report on health workforce metrics for International Health Regulations (Yes/Partial/No) 4-05.3 Ability of HRHIS (or other mechanism) to generate information to report on implementation of the WHO Global Code of Practice on the International Recruitment of Health Personnel (Yes/Partial/No) 4-05.4 Ability of HRHIS to generate information for reporting on outputs from education and training institutions (Yes/Partial/No) 4-05.5 Ability of HRHIS to generate information to track entrants to the labour market (Yes/Partial/No) 4-05.6 Ability of HRHIS to generate information to track active stock on the labour market (Yes/Partial/No) 4-05.7 Ability of HRHIS to generate information to track exits from the labour market (Yes/Partial/No) 4-05.8 Ability of HRHIS to generate geocoded information on the location of health facilities (Yes/Partial/No) 4-05.9 Ability of HRHIS to monitor gender pay gap (Yes/Partial/No)		Not applicable

Bridging table

The following table shows how indicators from NHWA version 1 are classified in NHWA version 2. The status explains if the indicator is maintained as in version 1, merged with another indicator, modified substantially, or dropped.

NHWA V1 Indicator ID	V1 Indicator abbreviated name	Status	NHWA V2 Indicator ID	V2 Indicator abbreviated name
Module 1 – Active health workforce stock				
01-01	Health worker density	Maintained	**1-01**	Health worker density
01-02	Health worker density at subnational level	Maintained	**1-02**	Health worker density at subnational level
01-03	Health worker distribution by age group	Maintained	**1-03**	Health worker distribution by age group
01-04	Female health workforce	Maintained	**1-04**	Health worker distribution by sex
01-05	Health worker distribution by facility ownership	Maintained	**1-05**	Health worker distribution by facility ownership
01-06	Health worker distribution by facility type	Maintained	**1-06**	Health worker distribution by facility type
01-07	Share of foreign-born health workers	Maintained	**1-07**	Health worker distribution by place of birth
01-08	Share of foreign-trained health workers	Maintained	**1-08**	Health worker distribution by place of training
01-09	Share of workers across health and social sectors	Dropped	**Not in NHWA V2**	
Module 2 – Education and training				
02-01	Master list of accredited health workforce education and training institutions	Dropped	**Not in NHWA V2**	
02-02	Duration of education and training	Maintained	**2-05**	Duration of education and training
02-03	Applications for education and training	Modified	**2-02**	Ratio of applications to education and training capacity
02-04	Ratio of admissions to available places	Modified	**2-03**	Ratio of enrolments to applications
02-05	Ratio of students to qualified educators for education and training	Dropped	**Not in NHWA V2**	
02-06	Exit/drop-out rate from education and training programmes	Modified	**2-04**	Ratio of graduates to stock
02-07	Graduation rate from education and training programmes	Modified	**2-04**	Ratio of graduates to stock

NHWA V1 Indicator ID	V1 Indicator abbreviated name	Status	NHWA V2 Indicator ID	V2 Indicator abbreviated name
Module 3 – Education and training regulation and accreditation				
03-01	Standards for the duration and content of education and training	Dropped	**Not in NHWA V2**	
03-02	Accreditation mechanisms for education and training institutions and their programmes	Maintained	**2-06**	Accreditation mechanisms and standards for education and training institutions and their programmes
03-03	Standards for social accountability	Maintained	**2-07**	Standards for education and training programmes
03-04	Standards for social accountability effectively implemented	Dropped	**Not in NHWA V2**	
03-05	Standards for social determinants of health	Merged with 03-03	**2-07**	Standards for education and training programmes
03-06	Standards for interprofessional education	Merged with 03-03	**2-07**	Standards for education and training programmes
03-07	Agreement on accreditation standards	Merged with 03-03	**2-07**	Standards for education and training programmes
03-08	Continuing professional development	Merged with 03-03	**2-07**	Standards for education and training programmes
03-09	In-service training	Merged with 03-03	**2-07**	Standards for education and training programmes
Module 4 – Education finances				
04-01	Total expenditure on higher education	Dropped	**Not in NHWA V2**	
04-02	Total expenditure on health workforce education	Maintained	**3-03**	Total expenditure on health workforce education
04-03	Average tuition fee per student	Maintained	**3-05**	Average tuition fee per student
04-04	Investment in transformative education and training	Dropped	**Not in NHWA V2**	
04-05	Expenditure per graduate on health workforce education	Maintained	**3-04**	Expenditure per graduate on health workforce education
04-06	Cost per graduate of medical specialist education programmes	Merged with 04-05	**3-04**	Expenditure per graduate on health workforce education
04-07	Cost of qualified educators per graduate	Dropped	**Not in NHWA V2**	
04-08	Total expenditure on in-service training and continuing professional development	Dropped	**Not in NHWA V2**	

NHWA V1 Indicator ID	V1 Indicator abbreviated name	Status	NHWA V2 Indicator ID	V2 Indicator abbreviated name
Module 5 – Health labour market flows				
05-01	Graduates starting practice within one year	Dropped	**Not in NHWA V2**	
05-02	Replenishment rate from domestic efforts	Maintained	**1-09**	Annual inflows of health workers
05-03	Entry rate for foreign health workers	Merged with 05-02	**1-09**	Annual inflows of health workers
05-04	Voluntary exit rate from health labour market	Maintained	**1-10**	Annual outflows of health workers
05-05	Involuntary exit rate from health labour market	Merged with 05-04	**1-10**	Annual outflows of health workers
05-06	Unemployment rate	Dropped	**Not in NHWA V2**	
05-07	Vacancy rate	Maintained	**1-11**	Vacancy rate
Module 6 – Employment characteristics and working conditions				
06-01	Standard working hours	Dropped	**Not in NHWA V2**	
06-02	Health workers with a part-time contract	Maintained	**1-12**	Health workers distribution by type of contract
06-03	Regulation on working hours and conditions	Maintained	**4-01**	Labour regulations and policies for health workforce
06-04	Regulation on minimum wage	Merged with 06-03	**4-01**	Labour regulations and policies for health workforce
06-05	Regulation on social protection	Merged with 06-03	**4-01**	Labour regulations and policies for health workforce
06-06	Health worker status in employment	Merged with 06-02	**1-12**	Health workers distribution by type of contract
06-07	Regulation on dual practice	Merged with 06-03	**4-01**	Labour regulations and policies for health workforce
06-08	Regulation on compulsory service	Merged with 06-03	**4-01**	Labour regulations and policies for health workforce
06-09	Measures to prevent attacks on health workers	Merged with 06-03	**4-01**	Labour regulations and policies for health workforce
06-10	Attacks on health-care system	Dropped	**Not in NHWA V2**	
Module 7 – Health workforce spending and remuneration				
07-01	Total expenditure on health workforce	Dropped	**Not in NHWA V2**	
07-02	Total official development assistance on health workforce	Dropped	**Not in NHWA V2**	

NHWA V1 Indicator ID	V1 Indicator abbreviated name	Status	NHWA V2 Indicator ID	V2 Indicator abbreviated name
07-03	Total expenditure on compensation of health workers	Maintained	**3-01**	Expenditure on compensation of health workers
07-04	Public expenditure on compensation of health workers	Merged with 07-03	**3-01**	Expenditure on compensation of health workers
07-05	Entry-level wages and salaries	Maintained	**3-02**	Entry-level wages and salaries
07-06	Policies on public sector wage ceilings	Dropped	**Not in NHWA V2**	
07-07	Gender wage gap	Modified	**4-05**	National capacity to monitor key metrics for health workforce planning and global monitoring frameworks
Module 8 – Skill-mix composition for models of care				
08-01	Percentage of health workforce working in hospitals	Merged with 01-06	**1-06**	Health worker distribution by facility type
08-02	Percentage of health workforce working in residential long-term care facilities	Merged with 01-06	**1-06**	Health worker distribution by facility type
08-03	Percentage of health workforce working in ambulatory health care	Merged with 01-06	**1-06**	Health worker distribution by facility type
08-04	Specialist surgical workforce	Merged with 01-01	**1-01**	Health worker density
08-05	Family medicine practitioners	Maintained	**1-01**	Health worker density
08-06	Existence of advanced nursing roles	Maintained	**4-01**	Labour regulations and policies for health workforce
08-07	Availability of human resources to implement the International Health Regulations	Maintained	**4-04**	International Health Regulations implementation capacity
08-08	Applied epidemiology training programme	Dropped	**Not in NHWA V2**	
Module 9 – Governance and health workforce policies				
09-01	Mechanisms to coordinate an intersectoral health workforce agenda	Maintained	**4-02**	Health workforce governance and leadership capacity
09-02	Central health workforce unit	Merged with 09-01	**4-02**	Health workforce governance and leadership capacity
09-03	Health workforce planning processes	Merged with 09-01	**4-02**	Health workforce governance and leadership capacity

NHWA V1 Indicator ID	V1 Indicator abbreviated name	Status	NHWA V2 Indicator ID	V2 Indicator abbreviated name
09-04	Education plans aligned with national health plan	Merged with 09-01	**4-02**	Health workforce governance and leadership capacity
09-05	Institutional models for assessing health care staffing needs	Merged with 09-01	**4-02**	Health workforce governance and leadership capacity
Module 10 – Health workforce information systems				
10-01	HRHIS for reporting on International Health Regulations	Maintained	**4-05**	National capacity to monitor key metrics for health workforce planning and global monitoring frameworks
10-02	HRHIS for WHO Code of Practice reporting	Merged with 10-01	**4-05**	National capacity to monitor key metrics for health workforce planning and global monitoring frameworks
10-03	HRHIS for reporting on skilled attendance at birth requirements	Merged with 10-01	**4-05**	National capacity to monitor key metrics for health workforce planning and global monitoring frameworks
10-04	HRHIS for reporting on outputs from education and training institutions	Merged with 10-01	**4-05**	National capacity to monitor key metrics for health workforce planning and global monitoring frameworks
10-05	HRHIS for tracking the number of entrants to the labour market	Merged with 10-01	**4-05**	National capacity to monitor key metrics for health workforce planning and global monitoring frameworks
10-06	HRHIS for tracking the number of active stock on the labour market	Merged with 10-01	**4-05**	National capacity to monitor key metrics for health workforce planning and global monitoring frameworks
10-07	HRHIS for tracking the number of exits from the labour market	Merged with 10-01	**4-05**	National capacity to monitor key metrics for health workforce planning and global monitoring frameworks
10-08	HRHIS for producing the geocoded location of health facilities	Merged with 10-01	**4-05**	National capacity to monitor key metrics for health workforce planning and global monitoring frameworks

How to read indicator metadata

The indicators in the NHWA are presented as metadata sheets. The indicators are mostly numeric (quantitative), i.e. representing in numbers certain ratios with a numerator and denominator related to a 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. Definitions for key terms are presented in the Glossary, with an indication in the metadata sheets. External links and references are provided for 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:

- **Indicator number:** according to the standard numbering of the NHWA indicator system. It contains two numbers: the first number refers to the module, the second one to the indicator itself inside the module.

- **Abbreviated name of the indicator:** this name is for general use when referring to the indicator.

- **Name of the indicator:** full name of the indicator, which provides information about the definition. Some indicators are categoric, such as on the existence of a regulation; for these indicators, the possible values are provided in parenthesis (for example: Yes/Partial/No).

- **Numerator:** Numerator to be used for the calculation of the indicator (applicable only for numeric indicators).

- **Denominator:** Denominator to be used for the calculation of the indicator (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 and additional technical notes. Where capability indicators consist of questions, these and options for the answers are listed here.

- **Glossary:** key terms from the indicator definition for which an explanation can be found in the Glossary of the Handbook.

- **Data reporting frequency:** whether the data should be collected on an annual basis or every three years.

- **Potential data sources:** relevant data sources at national level that can provide information for the current indicator, listed in order of decreasing relevance.

- **Further information and related links:** these represent the key literature, governing body, resolution, or programme publication that was used as a reference, or provide further information on the context of the indicator.

Module 1

Stock and flow

Module summary

This module provides a comprehensive overview of the size, composition and distribution of the HWF as well as its flow throughout the HLM.

1-01

Abbreviated name

Health worker density

Indicator name	Density of health workers per 10 000 population
Numerator	Number of active health workers, defined in headcounts
Denominator	Total population
Disaggregation	By occupation, by occupation and activity level
Definition	Number of health workers per 10 000 population. For activity level the following categories are recommended: practising health workers, professionally active health workers, and health workers licensed to practise. Total population as estimated in the World Population Prospects published by the Population Division of the Department of Economic and Social Affairs of the United Nations Secretariat. In case of other methodology used, WHO recalculates densities according to the UN population estimates in order to harmonize the densities and ensure comparability.
Glossary	• Active health worker • Activity level • Occupation
Data reporting frequency and reporting frameworks	Annual Reporting frameworks: UN SDG 3.c.1, SDG 3.8.1, WHO Global Code of Practice on the International Recruitment of Health Personnel, Global Strategy for Human Resources for Health: Workforce 2030 (GSHRH), Working for Health programme, Global Strategic Directions for Nursing and Midwifery (SDNM), Immunization Agenda 2030 (IA2030), SCORE for Health Data Technical Package (SCORE), Primary Health Care (PHC) Measurement Framework, Community Health Workers (CHWs), Global Oral Health Action Plan
Potential data sources	• Health workforce registry or database • Aggregate data from health facilities (routine administrative records, Health Management Information System, District Health Information System census and/or survey) • Professional council/chamber/association registers • Labour force surveys • Population census data • United Nations Population Division
Further information and related links	[5, 6, 9, 31, 33, 45-55]

Health worker density at subnational level

Indicator name	Density of active health workers per 10 000 population at subnational level
Numerator	Number of active health workers in level 1 subnational administrative units
Denominator	Total population at subnational level
Disaggregation	By occupation
Definition	Number of active health workers per 10 000 population in the given subnational administrative unit. Preferably, the subnational unit should correspond to the place of work of health workers. The use of administrative units to the first subnational level is recommended (depending on the structure of administrative units and the size of subnational territories), without overlaps between the administrative units. Examples of subnational administrative units include states, regions, provinces, counties, and districts.
Glossary	• Active health worker • Occupation • Subnational level
Data reporting frequency and reporting frameworks	Annual Reporting frameworks: UN SDG 3.c.1, Global Strategy for Human Resources for Health: Workforce 2030 (GSHRH), Working for Health programme, Global Strategic Directions for Nursing and Midwifery (SDNM), SCORE for Health Data Technical Package (SCORE), Primary Health Care (PHC) Measurement Framework
Potential data sources	• Health workforce registry or database • Aggregate data from health facilities (routine administrative records, Health Management Information System, District Health Information System census and/or survey) • Professional council/chamber/association registers • Population census data • Health facility database (with location) • United Nations Population Division
Further information and related links	(5, 6, 9, 25, 45, 47-51)

1-03

Abbreviated name

Health worker distribution by age group

Indicator name	Percentage of active health workers in different age groups
Numerator	Number of active health workers in age group categories
Denominator	Total number of active health workers, defined in headcounts
Disaggregation	By occupation, by occupation and sex
Definition	Percentage of active health workers in the given age and sex category. This indicator enables to create the population pyramid of health workers. Age groups considered are the following: < 25, 25–34, 35–44, 45–54, 55–64, ≥ 65 years. Sex groups corresponds to male or female health workers.
Glossary	• Active health worker • Age group • Sex • Occupation
Data reporting frequency and reporting frameworks	Annual Reporting frameworks: UN SDG 3.c.1, Global Strategic Directions for Nursing and Midwifery (SDNM), SCORE for Health Data Technical Package (SCORE)
Potential data sources	• Health workforce registry or database • Aggregate data from health facilities (routine administrative records, Health Management Information System, District Health Information System census and/or survey) • Professional council/chamber/association registers • Labour force surveys • Population census data
Further information and related links	(6, 45, 48-51, 56)

Health worker distribution by sex

1-04

Indicator name	Percentage of active health workers by sex
Numerator	Number of active health workers in sex categories
Denominator	Total number of active male and female health workers, defined in headcounts
Disaggregation	By occupation
Definition	Percentage of active health workers in the given sex category. Sex group corresponds to male or female health workers.
Glossary	• Active health worker • Occupation • Sex
Data reporting frequency and reporting frameworks	Annual Reporting frameworks: UN SDG 3.c.1, Global Strategic Directions for Nursing and Midwifery (SDNM), SCORE for Health Data Technical Package (SCORE)
Potential data sources	• Health workforce registry or database • Aggregate data from health facilities (routine administrative records, Health Management Information System, District Health Information System census and/or survey) • Labour force surveys • Population census data
Further information and related links	(6, 45, 48-51, 54)

1-05

Abbreviated name

Health worker distribution by facility ownership

Indicator name	Percentage of active health workers employed by facility ownership
Numerator	Number of active health workers, defined in headcounts, working in facilities owned by the given institutional sector (public or private not-for-profit or private for-profit)
Denominator	Total number of active health workers, defined in headcounts
Disaggregation	By occupation
Definition	Percentage of active health workers employed by facility ownership (public, private not-for-profit, private for-profit). The categories of facility ownership can be aligned to institutional sector definitions of the System of National Accounts (SNA 2008).
Glossary	• Active health worker • Facility/institution ownership type • Institutional sector
Data reporting frequency and reporting frameworks	Annual Reporting frameworks: SCORE for Health Data Technical Package (SCORE)
Potential data sources	• Health workforce registry or database • Aggregate data from health facilities (routine administrative records, Health Management Information System, District Health Information System census and/or survey) • Labour force surveys • Census
Further information and related links	(45, 49, 50, 54, 57)

Abbreviated name

Health worker distribution by facility type

1 – 06

Indicator name	Percentage of active health workers employed by facility type
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 occupation
Definition	Percentage of active health workers employed in the given facility type. Health facility types are based on the classification of System of Health Accounts: • 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)
Glossary	• Active health worker • Facility type • Occupation
Data reporting frequency	Annual
Potential data sources	• Health workforce registry or database • Aggregate data from health facilities (routine administrative records, Health Management Information System, District Health Information System census and/or survey) • Labour Force Surveys • Census
Further information and related links	(51, 53, 58)

1-07

Abbreviated name

Health worker distribution by place of birth

Indicator name	Percentage of active health workers by their place of birth
Numerator	Number of active health workers by place of birth
Denominator	Total number of active health workers, defined in headcounts
Disaggregation	By occupation
Definition	Percentage of active health workers by their place of birth. Place of birth is defined as national-born or foreign-born. This indicator will capture the information on the health workers coming from abroad.
Glossary	• Active health worker • Occupation • Place of birth
Data reporting frequency and reporting frameworks	Annual Reporting frameworks: WHO Global Code of Practice on the International Recruitment of Health Personnel, Global Strategic Directions for Nursing and Midwifery (SDNM)
Potential data sources	• Health workforce registry or database • Professional council/chamber/association registers • Health facility data • Population census data
Further information and related links	(31, 48, 49, 51, 59, 60)

Abbreviated name

Health worker distribution by place of training

1-08

Indicator name	Percentage of active health workers by their place of training
Numerator	Number of active health workers by place of training
Denominator	Total number of active health workers, defined in headcounts
Disaggregation	By occupation, by occupation and country of training among foreign-trained, by occupation and place of birth among foreign-trained
Definition	Percentage of active health workers by their place of training. Place of training is defined as either domestic-trained, foreign-trained or unknown location of training. The disaggregation by occupation and country of training is applicable to foreign-trained workers, and enables the monitoring of health worker migration by country of training. The disaggregation by occupation and place of birth is applicable to foreign-trained workers, and enables the monitoring of foreign-trained – national-born and foreign-trained – foreign-born workers.
Glossary	• Active health worker • Occupation • Place of training
Data reporting frequency and reporting frameworks	Annual Reporting frameworks: WHO Global Code of Practice on the International Recruitment of Health Personnel, Global Strategy for Human Resources for Health: Workforce 2030 (GSHRH), Global Strategic Directions for Nursing and Midwifery (SDNM)
Potential data sources	• Health workforce registry or database • Professional council/chamber/association registers • Health facility data
Further information and related links	[31, 48, 49, 61, 62]

1-09

Abbreviated name

Annual inflows of health workers

Indicator name	Ratio of newly active health workers to the total stock of active health workers
Numerator	Number of newly active health workers
Denominator	Total number of active health workers, defined in headcounts
Disaggregation	By occupation, by occupation and place of training, by occupation, place of training and sex
Definition	Newly active health workers are those who started their activity in the given profession. In case data are available only for newly licensed health workers, the total number of licensed health workers should be used as denominator regardless of availability of data on active health workers. For total number of active health workers, data at the middle or the end of the reference year should be used. Disaggregation by place of training (domestic-trained vs foreign-trained) enables to capture the health labour market dynamics of migration.
Glossary	• Active health worker • Newly active health worker • Activity level • Place of training • Sex • Occupation
Data reporting frequency and reporting frameworks	Annual Reporting frameworks: Global Strategic Directions for Nursing and Midwifery (SDNM), SCORE for Health Data Technical Package (SCORE)
Potential data sources	• Ministry of Health database • Health workforce registry or database • Professional council/chamber/association registers • Aggregate data from health facilities (routine administrative records, Health Management Information System, District Health Information System census and/or survey)
Further information and related links	(45, 49-51)

Annual outflows of health workers

Indicator name	Ratio of active health workers leaving the health labour market to the total stock of active health workers
Numerator	Number of health workers who became inactive in the health labour market
Denominator	Total number of active health workers, defined in headcounts
Disaggregation	By occupation, by occupation and type of exit (voluntary vs involuntary), by occupation, type of exit and sex
Definition	Percentage of active health workers who became inactive in the health labour market due to voluntary reason or involuntary reason The disaggregation by type of exit has the following two categories: • Voluntary exit corresponds to the following situations: emigration, temporary leave, change of sector, early retirement or other voluntary reason. Only early retirement should be considered as voluntary exit; retirement at standard age is to be counted in the involuntary exit. • Involuntary exit corresponds to the following situations: death, retirement (excluding early retirement), suspension from work, long-term illness or other involuntary reason. For the total number of active health workers, data at the end of the previous year should be used.
Glossary	• Active health worker • Activity level • Sex • Occupation
Data reporting frequency and reporting frameworks	Annual Reporting frameworks: SCORE for Health Data Technical Package (SCORE)
Potential data sources	• Health workforce registry or database • Professional council/chamber/association registers • Aggregate data from health facilities (routine administrative records, Health Management Information System, District Health Information System census and/or survey) • Data from pension and/or retirement administration units • Mortality records
Further information and related links	(45, 47, 49-51, 53, 54, 63)

1 – 11

Abbreviated name

Vacancy rate

Indicator name	Ratio of unfilled posts to total number of funded posts
Numerator	Number of funded full-time posts that have not been filled for at least twelve months
Denominator	Total number of funded full-time posts (filled and unfilled)
Disaggregation	By occupation
Definition	Ratio of unfilled posts to total number of posts. By limiting the count of unfilled posts for at least twelve months, this indicator enables to distinguish between a systematic job vacancy situation versus potential rapid turnover of staff.
Glossary	• Occupation • Job vacancy • Subnational level • Vacancy rate
Data reporting frequency and reporting frameworks	Annual Reporting frameworks: Global Strategic Directions for Nursing and Midwifery (SDNM), SCORE for Health Data Technical Package (SCORE)
Potential data sources	• Labour force surveys • Health facility assessments • Employment offices and/or job agencies
Further information and related links	(49, 53, 64)

Health worker distribution by type of contract

Indicator name	Percentage of active health workers by their type of contract
Numerator	Number of active health workers in specific types of contracts (full-time vs part-time)
Denominator	Total number of active health workers, defined in headcounts
Disaggregation	By occupation
Definition	Percentage of active health workers in the given type of contract. Type of contract are defined as either full-time or part-time. • Full-time workers are defined as employed or self-employed persons whose normal working hours in their main job correspond at least to the legal number of working hours per week, i.e. usually working 30 hours per week or above. • Part-time workers are defined as employed or self-employed persons whose normal hours of work are less than those of comparable full-time workers.
Glossary	• Active health worker • Occupation • Contract type
Data reporting frequency	Annual
Potential data sources	• Facility database and/or surveys • Health workforce registry or database • Labour force surveys • Public service human resources and payroll administrations
Further information and related links	(65-67)

Module 2

Education

Module summary

This module addresses capacity and quality in HWF education and training. These are aligned with education sector (SDG 4) indicators, which can assist in coordinating policies on production.

2-01

Abbreviated name

Health workforce education and training capacity

Indicator name	Ratio of health workforce education and training capacity per 10 000 population
Numerator	Number of places in health education and training institutions
Denominator	Total population
Disaggregation	By health workforce education and training programme
Definition	The health workforce education and training capacity refers to the number of places or seats. This indicator enables to estimate the availability of the training capacity and express it per 10 000 population. Total population as estimated in the World Population Prospects by the United Nations Population Division. In case of other methodology used, WHO recalculates densities according to the UN population estimates in order to harmonize the densities and ensure comparability.
Glossary	• Health workforce education and training capacity • Health workforce education and training programme • Health workforce education and training institution
Data reporting frequency	Annual
Potential data sources	• Ministry of Education • Data on education and training statistics • Education and training institutions • United Nations Population Division
Further information and related links	[68]

Abbreviated name

Ratio of applications to education and training capacity

2-02

Indicator name	Ratio of applications for health workforce education and training to the training capacity
Numerator	Number of applications for the first year of a health workforce education and training programme
Denominator	Total number of places available in the first year of a health workforce education and training programme
Disaggregation	By health workforce education and training programme, by health workforce education and training programme and sex
Definition	Applications for the first year of a health workforce education and training programme divided by the number of training places for this first year.
Glossary	• Health workforce education and training place • Health workforce education and training programme • Applications • Sex
Data reporting frequency and reporting frameworks	Annual Reporting frameworks: Global Strategic Directions for Nursing and Midwifery (SDNM)
Potential data sources	• Ministry of Education • Ministry of Higher Education • Databases on education and training statistics; education and training institutions
Further information and related links	[51, 52, 68, 69]

2-03

Abbreviated name

Ratio of enrolments to application

Indicator name	Ratio of students enrolled in the first year of health workforce education and training programmes to applications for these programmes
Numerator	Total number of enrolments in the first year of a health workforce education and training programme
Denominator	Total number of applications for the first year of a health workforce education and training programme
Disaggregation	By health workforce education and training programme, by health workforce education and training programme and sex
Definition	Ratio of enrolment in health workforce education and training programmes to applications.
Glossary	• Applications • Enrolments • Health workforce education and training programme • Sex
Data reporting frequency and reporting frameworks	Annual Reporting frameworks: Global Strategy for Human Resources for Health: Workforce 2030 (GSHRH), Global Strategic Directions for Nursing and Midwifery (SDNM)
Potential data sources	• Databases on education statistics • Education and training institutions
Further information and related links	[6, 9, 68, 70]

Indicator name	Ratio of graduates of health workforce education and training programmes to the stock of active health workers
Numerator	Number of graduates from a cohort of a health workforce education and training programme
Denominator	Number of active health workers, defined in headcounts
Disaggregation	By health workforce education and training programme, by health workforce education and training programme and sex, by health workforce education and training programme and health education and training institution ownership (public/private)
Definition	This indicator aims to approach the graduation rate using data available on an annual basis. The exact graduation rate can also be calculated from longitudinal information on students following cohorts of students. If such data are available, the graduation rate estimated from the most recent complete cohort can be reported. In addition to the total number of graduates, distribution of graduates by sex and by ownership enables to identify potential maldistribution and inequities.
Glossary	• Graduate • Health workforce education and training programme • Sex • Student • Active health worker
Data reporting frequency and reporting frameworks	Annual Reporting frameworks: Global Strategy for Human Resources for Health: Workforce 2030 (GSHRH), Working for Health programme, Global Strategic Directions for Nursing and Midwifery (SDNM), SCORE for Health Data Technical Package (SCORE)
Potential data sources	• Databases of health education and training institutions • Health workforce registry or database • Professional council/chamber/association registers
Further information and related links	(6, 9, 45, 47)

2-05

Abbreviated name

Duration of education and training

Indicator name	Duration of health workforce education and training programmes, in years
Disaggregation	By health workforce education and training programme
Definition	Duration of health workforce education and training is the number of years required to complete a full curriculum for each health workforce education and training programme. This duration does not include specializations or time to obtain additional, optional, certifications.
Glossary	• Health workforce education and training programme • Duration of health workforce education and training
Data reporting frequency and reporting frameworks	Annual Reporting frameworks: Global Strategic Directions for Nursing and Midwifery (SDNM)
Potential data sources	• Ministry of Education • Database on education and training statistics • Education and training institutions
Further information and related links	[6, 51, 52, 69]

Accreditation mechanisms for education and training institutions and their programmes

Indicator name

Existence of national and/or subnational mechanisms for accreditation of health workforce education and training institutions and their programmes (Yes/Partial/No)

Disaggregation

By health workforce education and training programme

Definition

The following questions should guide a response to this indicator:

- Have national and/or subnational mechanisms for accreditation of health workforce education and training institutions and their programmes been established?
- Are national and/or subnational mechanisms for accreditation of health workforce education and training institutions and their programmes compulsory?
- Are there national and/or subnational mechanisms for accreditation of health workforce education and training institutions and their programmes that are not compulsory?
- If established, do national and/or subnational mechanisms for accreditation of health workforce education and training institutions and their programmes take into account national education plans for the health workforce?

Glossary

- Accreditation
- Health workforce education and training programme
- Health workforce education and training institution

Data reporting frequency and reporting frameworks

Every three years

Reporting frameworks: Global Strategy for Human Resources for Health: Workforce 2030 (GSHRH), Working for Health programme, Global Strategic Directions for Nursing and Midwifery (SDNM), Primary Health Care (PHC) Measurement Framework

Potential data sources

- Ministry of Health
- Ministries of Education, Higher Education or similar
- National accreditation authorities
- Legitimate bodies, statutory corporations
- Professional council/chamber/association registers

Further information and related links

[6, 9, 69, 71-73]

2-07

Abbreviated name

Standards for education and training programmes

Indicator name	Existence of standards for education and training programmes
Definition	This indicator is a composite of seven sub-indicators, see below. The response to these seven sub-indicators is aggregated as a score (see part II on methods) on a scale from 1 (nascent) to 5 (sustainable). Each sub-indicator is a self-assessment of one aspect of standards on education and training programmes. To help answer these self-assessed sub-indicators, a series of guiding questions are provided.
Sub-indicator 2 – 07.1	Existence of national and/or subnational standards for social accountability in accreditation mechanisms of training programmes (Yes/Partial/No) *Guiding questions:* Is social accountability included or reflected within national and/or subnational standards for accreditation of health workforce education and training institutions and their programmes? Is there an involvement of civil society, other social stakeholders and communities in accreditation mechanisms?
Sub-indicator 2 – 07.2	Existence of national and/or subnational standards for the social determinants of health in accreditation mechanisms of training programmes (Yes/Partial/No) *Guiding questions:* Are the social determinants of health included or reflected within national and/or subnational standards? Do health workforce education and training institutions measure social determinants of health in the populations they serve? Do health workforce education and training institutions adapt curricula according to social determinants of health in their communities?
Sub-indicator 2 – 07.3	Existence of national and/or subnational standards for interprofessional education in accreditation mechanisms of training programmes (Yes/Partial/No) *Guiding question:* Is interprofessional education, involving several health workforce education and training programmes, included or reflected within national and/or subnational standards?
Sub-indicator 2-07.4	Existence of cooperation between health workforce education and training institutions and regulatory bodies to agree on accreditation standards (Yes/Partial/No) *Guiding questions:* Is there a coordinating mechanism or body in place for this task? Are various stakeholders at national and institutional level involved in the coordination process? Are there institutional mechanisms in place to coordinate accreditation systems, including negotiations with relevant ministries, government agencies and stakeholders?
Sub-indicator 2 – 07.5	Existence of national systems for continuing professional development (Yes/Partial/No) *Guiding questions:* Are there existing national and/or subnational systems for continuing professional development (CPD)? If national and/or subnational systems for CPD exist, are they compulsory and linked to re-licensure? For occupations that have a national and/or subnational system for CPD, is it integrated into national education plans for the health workforce, for that occupation?
Sub-indicator 2 – 07.6	Existence of in-service training as an element of national education plans for the health workforce (Yes/Partial/No) *Guiding questions:* 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 professional, technical and vocational education and training? Does in-service training consider and take into account national policies, strategies and plans for adult learning and higher education?

Sub-indicator 2 – 07.7	Existence of national and/or subnational standards for community health workers' curriculum (Yes/Partial/No/Not applicable) *Guiding questions:* Is there a national and/or subnational standard describing the content for the curriculum of community health workers (CHWs), with associated knowledge, skills and competencies required by them to perform their tasks? Do national and/or subnational mechanisms for accreditation of health workforce education and training institutions and their programmes include CHW curriculum? *Note:* if there are no CHWs in the country, then report as "Not applicable".
Disaggregation	By health workforce education and training programme (for all but last sub-indicator 2-07.7)
Glossary	• Health workforce education and training programme • Accreditation • Accreditation systems • Social accountability • Social determinants of health • Interprofessional education • Continuing professional development • Lifelong learning • Occupation • In-service training
Data reporting frequency and reporting frameworks	Every three years Reporting frameworks: Global Strategy for Human Resources for Health: Workforce 2030 (GSHRH), Global Strategic Directions for Nursing and Midwifery (SDNM), Primary Health Care (PHC) Measurement Framework, Community Health Workers (CHWs)
Potential data sources	• Ministry of Health • Ministries of Education, Higher Education or similar • National accreditation authorities • Legitimate bodies, statutory corporations • Professional council/chamber/association registers • Ministries responsible for labour
Further information and related links	(6, 9, 69, 71-73)

Module 3

Finance and expenditures

Module summary

This module covers finance and expenditures for active health workers and for the education and training of health workers.

3-01

Abbreviated name

Expenditure on compensation of health workers

Indicator name	Total expenditure on compensation of health workers
Disaggregation	By public/private
Definition	Total expenditure expressed in US$ on compensation of health workers. If possible, disaggregation by public or private sources for the compensation of health workers. Sometimes information is only available for public expenditure on compensation of health workers.
Glossary	• Active health worker • Remuneration
Data reporting frequency and reporting frameworks	Annual Reporting frameworks: Global Strategic Directions for Nursing and Midwifery (SDNM)
Potential data sources	• Ministry of Health records • Ministry of Finance records • Public/social health insurance • System of health accounts
Further information and related links	[6, 54, 58, 61]

Indicator name	Average entry-level wage and salary excluding social contributions
Disaggregation	By occupation, by occupation and public/private
Definition	Average wage or salary in US$ received by health workers when entering the active health labour market, excluding social contributions. Disaggregation by public vs private source is suggested, although often only the source from the public sector is available.
Glossary	• Active health worker • Occupation • Remuneration • Wage and salary
Data reporting frequency and reporting frameworks	Annual Reporting frameworks: Global Strategic Directions for Nursing and Midwifery (SDNM)
Potential data sources	• Ministry of Health records • Ministry of Finance records • Payroll data • Income tax data • General labour force surveys • Specific health worker surveys
Further information and related links	[6, 54, 58, 61]

3-03

Abbreviated name

Total expenditure on health workforce education

Dimension	Financing of higher education
Indicator name	Total expenditure on health workforce pre-service education (current and capital)
Disaggregation	By health workforce education and training programme, by health workforce education and training programme and institution ownership (public/private)
Definition	Total expenditure in US$ on health workforce education (current and capital). The disaggregation enables to differentiate between public vs private sources and distribution across programmes. Education here refers to pre-service education and does not include in-service education and training.
Glossary	• Total public expenditure • Pre-service education
Data reporting frequency and reporting frameworks	Annual Reporting frameworks: Global Strategic Directions for Nursing and Midwifery (SDNM)
Potential data sources	• Integrated Financial Management Information System; Ministry of Finance; Ministry of Health; Ministry of Education; Ministry of Defence (expenditure on military HWF education may fall under the Ministry of Defence budget) • Education Management Information System: Ministry of (Higher) Education; ministry or other accredited bodies responsible for technical and vocational education and training • National Bureau of Statistics – Government financial statistics departments • System of Health Accounts • National Education Accounts
Further information and related links	(6, 74-76)

Abbreviated name

Expenditure per graduate on health workforce education

3-04

Dimension	Education expenditure
Indicator name	Expenditure per graduate of health workforce education and training programme
Numerator	Total expenditure on health workforce education
Denominator	Total number of graduates from health workforce education and training programmes
Disaggregation	By health workforce education and training programme, by health workforce education and training programme and institution ownership (public/private)
Definition	Expenditure in US$ on health workforce education per graduate. The disaggregation by programme enables to identify inequities across programmes. The disaggregation by institution ownership enables to distinguish between publicly and privately owned education institutions.
Glossary	• Health workforce education and training programme • Graduate • Total expenditure on health workforce education
Data reporting frequency	Annual
Potential data sources	• Integrated Financial Management Information System: Ministry of Finance; Ministry of Health; Ministry of Education; Ministry of Defence (expenditure on military HWF education may fall under this budget) • Education Management Information System: Ministry of (Higher) Education; ministry or other accredited body responsible for technical and vocational education and training • National Bureau of Statistics – Government financial statistics departments • System of Health Accounts • National Education Accounts
Further information and related links	[75, 76]

3-05

Abbreviated name

Average tuition fee per student

Indicator name	Average annual tuition fee per student enrolled in health workforce education and training
Numerator	Total tuition fees paid by students enrolled in health workforce education and training programmes for a given year
Denominator	Total number of students enrolled in health workforce education and training programmes
Disaggregation	By health workforce education and training programme
Definition	Average tuition fee in US$ per student enrolled in health workforce education and training per year, by health workforce education and training programme. Whenever possible, this indicator should exclude students exonerated from paying tuition fees.
Glossary	• Health workforce education and training programme • Student
Data reporting frequency	Annual
Potential data sources	• Ministry of Finance • Ministry of Education • Databases on education statistics • Education and training institutions
Further information and related links	[75, 77]

Module 4

Working conditions, governance and leadership

Module summary

This module addresses working conditions, governance and leadership from various perspectives: health workers, national leadership capacity, and contribution of the country to regional and global mandates. The first indicator, from the workers' perspective, aims at identifying how well regulations and policy protect them. The second and third indicators are from the national leadership perspective. They seek to identify the extent to which mechanisms and tools exist at national level to coordinate the HRH agenda, including promoting women in leadership roles. The IHR indicator provides an assessment aligned with the existing monitoring framework on the availability of HWF for emergency preparedness and response. The final indicator is to assess the country's capacity to report key metrics on various frameworks, most of which have been adopted through resolutions of the World Health Assembly. These indicators provide a broad national level assessment of the working conditions, governance and leadership for all HCWs; therefore no disaggregation is expected for them.

4 – 01

Abbreviated name

Labour regulations and policies for health workforce

Indicator name	Existence of labour regulations and policies on the employment characteristics, protection and working conditions of the health workforce
Definition	This indicator is a composite of twelve sub-indicators, see below. The response to these twelve sub-indicators is aggregated as a score (see part II on methods) on a scale from 1 (nascent) to 5 (sustainable). Each sub-indicator is a self-assessment of one aspect of labour regulation and policies, primarily to protect and safeguard health and care workers. To help answer these self-assessed sub-indicators, a series of guiding questions are provided.
Sub-indicator 4 – 01.1	Existence of national/subnational policies/laws regulating working hours and conditions (Yes/Partial/No) *Guiding questions:* Has the government and its competent authorities regulated • the maximum number of working days allowed per week? • the premium for night work, for work on a weekly rest day, for overtime work (as a percentage of hourly pay)? • whether non-pregnant and non-nursing women can work the same night hours as men? • whether there are restrictions on night work, overtime or holiday work? • the average paid annual leave for workers with 1, 5 and 10 years of tenure? • whether regulations, laws or policies differ according to employment status?
Sub-indicator 4 – 01.2	Existence of national/subnational policies/laws regulating minimum wage (Yes/Partial/No) *Guiding questions:* Are health workers eligible to receive a minimal wage according to national/subnational laws? Is this minimal wage automatically revised according to economic parameters such as the cost of living?
Sub-indicator 4 – 01.3	Existence of national/subnational policies/laws regulating social protection (Yes/Partial/No) *Guiding questions:* Is there a national policy or programme regarding • maternity leave or pregnancy leave? • parental leave? • childcare support? • leave entitlements to care for sick family members? • leave entitlements for in-service training and continuing professional development?
Sub-indicator 4 – 01.4	Existence of national/subnational policies/laws regulating dual practice (Yes/Partial/No) *Guiding questions:* Is there a national policy or programme regarding • health workers working in a public service provision role and a role external to public services, i.e. in a completely separate private environment? • health workers working in a public service provision role and a parallel role, i.e. in a private ward or clinic physically associated with a public facility but run as a separate business? • health workers working in a public service provision role and another role within the public service, i.e. where private services are offered inside a public facility but outside public service operating hours or space?

Sub-indicator 4 – 01.5

Existence of national/subnational policies/laws regulating compulsory service (Yes/Partial/No)

Guiding questions: Is there a national policy or programme regarding

- condition of service/state employment programmes for health workers?
- compulsory service with incentives for health workers?
- compulsory service without incentives for health workers?

Sub-indicator 4 – 01.6

Existence of national/subnational policies/laws for prevention of attacks on health workers (Yes/Partial/No)

Guiding questions: Has the government and its competent authorities

- 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?
- promoted the participation of all parties concerned with such policies and plans?
- revised labour laws and other legislation and introduced special legislation where necessary, and ensured the enforcement of such legislation?
- encouraged the inclusion of provisions to reduce and eliminate workplace violence in national, sectoral and workplace/enterprise agreements?
- requested the collection of information and statistical data on the spread, causes and consequences of workplace violence?

Sub-indicator 4 – 01.7

Existence of national/subnational care packages for mental well-being of health workers (Yes/Partial/No)

Guiding questions: Are health workers eligible to receive mental well-being support in their care packages? Has the government and its competent authorities included the improvement of mental well-being of health workers in national/regional/local policies and plans?

Sub-indicator 4 – 01.8

Existence of mechanisms for in-kind renumeration to promote rural retention (Yes/Partial/No)

Guiding questions: Are health workers eligible to receive in-kind remuneration for settling their health care activities in rural area? Has the government and its competent authorities included the promotion of rural retention of health workers in national/regional/local policies and plans?

Sub-indicator 4 – 01.9

Existence of regulatory mechanisms for promoting health worker safety (Yes/Partial/No)

Guiding questions: Is there a mechanism to monitor and report health workers' safety? Do continuous professional development education and training programmes include curriculum on health workers' safety? Has the government and its competent authorities included the promotion of health workers' safety in national/regional/local policies and plans?

Sub-indicator 4 – 01.10

Existence of regulatory mechanisms to ensure oversight of the activities of health workers within the private sector (Yes/Partial/No)

Guiding questions: Is there a government (and its competent authorities) led mechanism for private sector to report on key indicators on health workforce? Are there norms and standards defining the qualifications and competencies of health workers applicable to the private sector? Do legal mechanisms enable sanctioning of non-compliance to national or subnational standards on health workforce?

4 – 01

Sub-indicator 4 – 01.11

Existence of remuneration of community health workers through salary (Yes/Partial/No/Not applicable)

Guiding questions: Do community health workers (CHWs) receive a remuneration for their work? What is their source of remuneration? Is the remuneration provided as a salary or for performing specific activities?

Follow these guiding questions, the suggested classification would be:

- "Yes": CHWs receive fixed salary
- "Partial": CHWs receive monetary incentives for performing specific activities (irregular source of income)
- "No": CHWs receive non-monetary incentives or are not paid at all
- "Not applicable": there are no CHWs in the country

Sub-indicator 4 – 01.12

Existence of advanced nursing roles (Yes/Partial/No)

Guiding questions: Is there a commonly accepted definition of 'nurse practitioner'? Is there another commonly accepted definition of other types of nurses working in advanced roles? 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.? Are there ad-hoc/ local methods for nurses being trained "on the job" to acquire specific skills that could lead to their employment in advanced roles?

Glossary

- Status in employment
- Occupation
- Community health workers
- Childcare support
- Continuing professional development
- In-service training
- Leave entitlements to care for sick family members
- Parental leave
- Dual practice

Data reporting frequency and reporting frameworks

Every three years

Reporting framework: Global Strategy for Human Resources for Health: Workforce 2030 (GSHRH), Working for Health programme, Global Strategic Directions for Nursing and Midwifery (SDNM), Global Health and Care Worker Compact, Community Health Workers (CHWs)

Potential data sources

- Employment laws, policies and regulations
- Social security records
- Government or legislative records
- Survey among country experts or informants
- Policy and strategic documents of governments and competent authorities

Further information and related links

(6, 78-85)

Abbreviated name

Health workforce governance and leadership capacity

4 – 02

Indicator name	Existence of health workforce governance and leadership capacity at national and/or subnational levels
Definition	This indicator is a composite of five sub-indicators, see below. The response to these five sub-indicators is aggregated as a score (see part II on methods) on a scale from 1 (nascent) to 5 (sustainable). Each sub-indicator is a self-assessment of one aspect of countries' governance and leadership capacity vis-à-vis of health and care workers. To help answer these self-assessed sub-indicators, a series of guiding questions are provided.
Sub-indicator 4 – 02.1	Existence of institutional mechanisms or bodies to coordinate an intersectoral health workforce agenda (Yes/Partial/No) *Guiding questions:* Is there a coordinating mechanism or body in place for this task? Are various stakeholders (ministries, public, private, nongovernmental, international bodies) involved in the coordination process? Has an agenda been formulated? Has the agenda been approved at inter-Ministerial level (Ministries of Education, Finance, Public Service, Health)?
Sub-indicator 4 – 02.2	Existence of a health workforce unit in the Ministry of Health responsible for developing and monitoring policies and plans on health workforce (Yes/Partial/No) *Guiding questions:* Are there functions to monitor health workforce policies and plans as part of the monitoring of health services development? Are there institutional mechanisms in place to coordinate an intersectoral health workforce agenda, including negotiations and intersectoral relationships with relevant other line ministries, government agencies and stakeholders?
Sub-indicator 4 – 02.3	Existence of mechanisms and models for health workforce planning (Yes/Partial/No) *Guiding questions:* Is there a coordinated communication and information flow among national-level intersectoral stakeholders? Is there a dedicated and established Human Resources for Health Planning Committee, a designated entity or a specific group at the national level responsible for the health workforce? Is there a methodology established for health workforce planning? Are complete data with full coverage of the population available in a sustainable manner to provide quantitative assessment required for health workforce planning? Are policy actions based on the recommendations of the Human Resources for Health Planning Committee implemented?
Sub-indicator 4 – 02.4	Existence of national education plans for the health workforce, aligned with the national health plan and the national health workforce strategy/plan (Yes/Partial/No) *Guiding questions:* Do education plans for the health workforce match health worker competencies with population, health systems, and health labour market needs? Do plans take into account efforts to scale up transformative education and training? Do recognized institutes such as national public health institutes, universities and collaborating centres offer training courses on the implementation and monitoring of Health in All Policies and related concepts? Are strategic steps taken when considering and taking into account the workforce market needs and absorptive capacities for the education plan development?
Sub-indicator 4 – 02.5	Existence of institutional models for assessing and monitoring staffing needs for health service delivery (Yes/Partial/No) *Guiding questions:* Is there a mechanism and/or responsible body in charge of determining the number of health workers of a particular occupation required to effectively and safely deliver health services in health facilities? Is there a mechanism to assess the workload of health workers in health facilities?

Glossary

- Occupation
- Health workforce planning
- Lifelong learning
- Continuing professional development
- In-service training

Data reporting frequency and reporting frameworks

Every three years

Reporting framework: Global Strategy for Human Resources for Health: Workforce 2030 (GSHRH), Working for Health programme, Global Strategic Directions for Nursing and Midwifery (SDNM)

Potential data sources

- Ministry of Health, Education, Labour
- Regional and/or subnational ministries of health and education
- Institutions or units responsible for policies on health workforce
- Relevant ministries according to the national government structure and constitutional arrangements/ level of devolution
- Educational institutions
- Health facilities

Further information and related links

(6, 9, 52, 53, 63, 86-94)

Abbreviated name

Share of women in leadership role

4-03

Indicator name	Share of women in senior management positions in the Ministry of Health
Numerator	Number of women in leadership roles in the Ministry of Health, defined in headcounts
Denominator	Total number of men and women in leadership roles in the Ministry of Health, defined in headcounts
Definition	Share of women, expressed as a percentage, of women in senior management positions in the Ministry of Health. To monitor and report on this indicator, it is advised to count all individuals at director-level or equivalent positions within the Ministry of Health. Using the organigram of the Ministry of Health, focusing on the senior positions, should be sufficient to estimate this indicator. Alternative approaches could be based on the count of men and women in delegations participating to the annual World Health Assemblies.
Glossary	• Active health worker • Leadership role • Gender
Data reporting frequency	Every three years
Potential data sources	Ministry of Health organigram or official documents
Further information and related links	[21, 95, 96]

4-04

Abbreviated name

International Health Regulations implementation capacity

Indicator name

Availability of human resources to implement International Health Regulations core capacity requirements (None/Limited/Developed/Demonstrated/ Sustainable)

Definition

This indicator is based on indicator D3.2 of the Joint External Evaluation (JEE) tool, third edition (which is similar to indicator C6.1 in State Party Self-assessment Annual Reporting (SAPR) tool), and it uses the following (capability) items:

No capacity (level 1)

Country does not have appropriate human resources capacity in relevant sectors required to detect, assess, notify, report and respond to events according to IHR provisions

Limited capacity (level 2)

Appropriate human resources are available in some relevant sectors at the national level to detect, assess, notify, report and respond to events according to IHR provisions

Developed capacity (level 3)

Appropriate human resources are available in all relevant sectors at national and intermediate levels to detect, assess, notify, report and respond to events according to IHR provisions

Demonstrated capacity (level 4)

Human resources are available as required in all relevant sectors at the national, intermediate and primary public health levels to detect, assess, notify, report and respond to events according to IHR provisions

Sustainable capacity (level 5)

Country has documented policies or procedures for sustainable appropriate human resources in all relevant sectors to detect, assess, notify, report and respond to events according to IHR provisions, that are exercised (as applicable), reviewed, evaluated and updated on a regular basis, and country may assist other countries in planning and developing human resources for IHR implementation, to the extent possible

Glossary

- International Health Regulations
- Public health workforce

Data reporting frequency and reporting frameworks

Every three years

Reporting frameworks: Joint External Evaluation (JEE), State Party Self-Assessment Annual Reporting Tool (SPAR)

Potential data sources

- Ministry of Health
- Public health institutions

Further information and related links

(97, 98)

Abbreviated name

National capacity to monitor key metrics for health workforce planning and global monitoring frameworks

4 – 05

Indicator name	Capacity of national human resources for health information systems to monitor key metrics relevant for national health workforce planning and policy-making and for global monitoring frameworks
Definition	This indicator is a composite of nine sub-indicators, see below. The response to these nine sub-indicators is aggregated as a score (see part II on methods) on a scale from 1 (nascent) to 5 (sustainable). Each sub-indicator is a self-assessment of one aspect of the capacity of the national human resources for health information system (HRHIS) or other mechanisms to report on key metrics that are relevant for national health workforce planning and policy-making as well as for global monitoring frameworks. To help answer some of these self-assessed sub-indicators, guiding questions are provided.
Sub-indicator 4 – 05.1	Ability of HIS to report on HRH data (Yes/Partial/No/Not applicable) *Guiding questions:* Is the country's national Health Information System (HIS) able to report routinely and annually stock statistics on health and care workers?
Sub-indicator 4 – 05.2	Ability of HRHIS (or other mechanism) to generate information to report on health workforce metrics for International Health Regulations (IHR) (Yes/Partial/No)
Sub-indicator 4 – 05.3	Ability of HRHIS (or other mechanism) to generate information to report on implementation of the WHO Global Code of Practice on the International Recruitment of Health Personnel (Yes/Partial/No)
Sub-indicator 4 – 05.4	Ability of HRHIS to generate information for reporting on outputs from education and training institutions (Yes/Partial/No) *Guiding questions:* Is there a master list of accredited education and training institutions at national level? If yes, is this master list geocoded? Is this master list updated on a regular basis? Do education and training institutions record the number of graduates by health workforce education and training, and by sex? Is information on the number of graduates provided to the relevant national body on an annual basis?
Sub-indicator 4 – 05.5	Ability of HRHIS to generate information to track entrants to the labour market (Yes/Partial/No)
Sub-indicator 4 – 05.6	Ability of HRHIS to generate information to track active stock on the labour market (Yes/Partial/No)
Sub-indicator 4 – 05.7	Ability of HRHIS to generate information to track exits from the labour market (Yes/Partial/No)
Sub-indicator 4 – 05.8	Ability of HRHIS to generate geocoded information on the location of health facilities (Yes/Partial/No)
Sub-indicator 4 – 05.9	Ability of HRHIS to monitor gender pay gap (Yes/Partial/No)

Glossary

- International Health Regulations
- Subnational level
- Active health worker
- Occupation
- Remuneration
- Status in employment
- Gender

Data reporting frequency and reporting frameworks

Annual

Reporting framework: Global Strategy for Human Resources for Health: Workforce 2030 (GSHRH), Working for Health programme, Global Strategic Directions for Nursing and Midwifery (SDNM), SCORE for Health Data Technical Package (SCORE)

Potential data sources

- Ministry of Health and regional ministries of health
- Professional chambers
- Institutions or units responsible for monitoring, or for policies on the health workforce
- Ministry of Labour
- National Statistical Office
- National Focal Point for WHO Global Code of Practice
- Ministry of Health and subnational ministries of health
- Institutions collecting health workforce data

Further information and related links

(6, 9, 31, 51, 63, 98-100)

Part IV

Examples of how to use NHWA to inform policy development

This section illustrates how the NHWA indicators could be combined and used to inform the development of policies for HCWs. Each of the following HWF topics can receive a specific in-depth study within a HLM analysis *[68]*, in which all NHWA indicators could be relevant, and for which additional studies and data might be required. However, once these main policies are identified as priority for the country, a regular monitoring on selected indicators would be required. Time-trend analysis of selected indicators enables tracking whether the identified policy challenge evolves positively through time or if new policies are required. Each topic is presented below with this perspective: to help countries identify indicators for routine follow-up on the policy challenges.

HWF planning

HWF planning is a requirement to strengthen PHC and UHC *[9]*. The development of HWF national plan or other specific health plan can only be achieved if the leadership and governance capacity is available, building on a solid situation analysis that allows planners to identify gaps and trends. This includes the national coordination of multiple sectors (e.g, health, education, employment, finance, decentralization, social protection). HWF planning would in principle require most of the indicators from the present handbook, particularly if an analysis of the stock and trend is envisaged. This would indeed require to integrate all components of the health labour market *[68]*, stock, flows, migration, ageing, education dynamic, financing, etc.
The table below shows selected indicators that could be used to better understand and implement HWF planning in a country. The first three indicators deal with the dynamic of the stock of HCWs and whether the trends show an improvement over time. The last three indicators facilitate an analysis of whether the country has put in place all systems necessary to enable a proper HWF planning, including through its capacity to implement IHR.

Indicator number	Indicator name	Indicator element	Evidence that this indicator enables to estimate
1-01	Health worker density	Number of active health workers, defined in head-counts, per 10 000 population	Define the current level of staffing. Time trend analysis can show if the stock is growing. The density per 10 000 population also enables checking whether the stock matches the population need
1-09	Annual inflows of health workers	Number of newly active health workers	Enables understanding of how many workers are entering the HLM
1-10	Annual outflows of health workers	Number of health workers who became inactive in the health labour market	Enables understanding of how many workers are leaving the HLM
4-02	Health workforce governance and leadership capacity	All sub-indicators	
4-04	International Health Regulations implementation capacity	Availability of human resources to implement International Health Regulations core capacity requirements (None/Limited/ Developed/Demonstrated/ Sustainable)	
4-05	National capacity to monitor key metrics for health workforce planning and global monitoring frameworks	All sub-indicators	

Equity and subnational distribution

There is globally a major inequity in the distribution of HCWs *(3)*. This inequity is also present at subnational level of countries, and poses an even bigger problem in countries with already low density of health workers *(25)*. Several factors can explain these inequities, such as differences in salaries across countries that could influence migration of workers, absence of education targeting rural areas' needs, or the absence of retention mechanism to stimulate the installation of HCWs in rural and hard-to-reach areas. To ensure equitable distribution of workforce, health planners must have access to information on the number of health workers and the corresponding demand on the health workers based on workload statistics. Complementary studies can be conducted at the facility levels, scaling up to national level, to address this, and using tools such as the Workload Indicators of Staffing Need (WISN), among others *(94)*.

The table below suggests a series of indicators that can be used to monitor and analyse the equity and subnational distribution of HCWs.

Indicator number	Indicator name	Indicator element	Evidence that this indicator enables to estimate
1-01	Health worker density	Number of active health workers, defined in headcounts, per 10 000 population	Comparison between countries, income groups or subregions with consideration for existing thresholds or targets Analysis of the trends, progress made and needs by countries, subregions, income groups to improve health workers' availability in relation to the demographic dynamics
1-02	Health worker density at subnational level	Density of specialists by subnational levels	For a given country, to analyse the gap of specialists between subnational areas, the needs to reach national or international thresholds for health specialists, the possibility to redeploy from some areas to another
1-06	Health worker distribution by facility type	Number of active health workers employed by facility type	Provide a better understanding of the distribution of HCWs by type of facilities, to highlight facility types and levels with more needs

Indicator number	Indicator name	Indicator element	Evidence that this indicator enables to estimate
1-09	Annual inflows of health workers	Trends in foreign born/ trained	Analysis of the dynamic of health workers' migration Analysis of the share of foreign-born/trained reported to the newly active health workers or to the total number of active health workers Identification of countries of interest to strengthen cooperation and monitoring flows on HWF education and training
2-07	Standards for education and training programmes	Sub-indicators: 2-07.1 Existence of national and/or subnational standards for social accountability in accreditation mechanisms of training programmes (Yes/Partial/No) 2-07.2 Existence of national and/or subnational standards for the social determinants of health in accreditation mechanisms of training programmes (Yes/Partial/No)	Assess if the education sector has mechanisms to ensure social accountability and social determinants of health are inculcated in HWF education and training programmes, both of which are particularly relevant to ensure that the education can also account for the needs of rural areas
3-02	Entry-level wages and salaries	All	Better understand the difference in earnings from HCW across countries, occupation groups, by sector
4-01	Labour regulations and policies for health workforce	Sub-indicators: 4-01.8 Existence of mechanisms for in-kind renumeration to promote rural retention (Yes/Partial/No)	Assess if a mechanism is in place to promote rural retention of HCW

Retention

The progress in reducing subnational inequities mentioned above relies on the capacity of countries to retain HCWs in rural, remote and other underserved areas. Retention challenges can be observed in the HLM when a misalignment exists with two phenomena occurring at the same time: unemployment of HCWs while several jobs are available and posts remain vacant. Incentives are sometimes used as a mechanism to improve retention of HCWs in rural or hard-to-reach areas.

The table below suggests a series of indicators that can help monitoring retention challenges in countries.

Indicator number	Indicator name	Indicator element	Evidence that this indicator enables to estimate
1-01	Health worker density	Number of active health workers, defined in head-counts, per 10 000 population	Analysis of the HCW availability by occupation and by activity level can provide information on the difference between the overall licensed workforce in comparison to those actually practising
1-11	Vacancy rate	Number of funded full-time posts that have not been filled for at least twelve months by occupation	Analyse the evolution of vacancy rates, according to areas and occupation, and their consequences on the capacity and performance of health facilities to provide PHC
4-01	Labor regulations and policies for health workforce retention	All sub-indicators	Analyse the existence and effectiveness of laws, policies and mechanisms on each of the following components and their interactions: retention, dual practice, health and safety and working conditions for health workers
4-02	Existence of health workforce governance and leadership capacity at subnational level	All sub-indicators	Determine the capacity of decentralized HRH management units to: i) effectively monitor the career of agents in their health areas; (ii) properly analyse current (capacity building) and future (staffing) staffing needs; iii) propose better redeployment and retention strategies; iv) precisely support the central level in developing new HRH policies and resource mobilization

Migration

The migration of HCWs is a policy question affecting most countries, either because of their reliance on foreign-trained HCWs or because a large proportion of their HWF emigrates. The WHO Global Code of Practice on the International Recruitment of Health Personnel is monitored through the National Reporting Instrument (NRI). Since the launch of NHWA in 2017, quantitative indicators included in the NRI are part of the NHWA indicators.

Approximately 15% of HCWs globally are working outside their country of birth or first professional qualification, and this varies by Region and by occupation *(101)*. While the historic patterns of mobility (e.g. south to north, low-income to high-income) are still evident, the distinction between source and destination countries is becoming increasingly blurred. GSHRH 2030 milestone 3 aims to assess if all countries are making progress towards halving their reliance on foreign-trained health professionals, implementing the WHO Global Code of Practice *(31)*.

The density of selected HCWs enables to define, along with the universal health service coverage index (UHC SCI), if the country is included on the WHO health workforce Support and Safeguards List (SSL) *(102)*.

The table below summarizes key indicators to monitor migration policies.

Indicator number	Indicator name	Indicator element	Evidence that this indicator enables to estimate
1-01	Health worker density	Number of active health workers, defined in head-counts, per 10 000 population	Density of health workers (medical doctors, nursing personnel, midwifery personnel, dentists and pharmacists) per 10 000 population was one of the two criteria used for establishing the WHO SSL
1-07	Health worker distribution by place of birth	Number of active health workers by place of birth by occupation	Dependency on foreign-born health workers
1-08	Health worker distribution by place of training	Number of active health workers by place of training, by occupation and by country of training	Dependency on foreign-trained health workers and their country of training
1-09	Annual inflows of health workers	Number of newly active health workers, by occupation and place of training	Annual inflow of HCWs, thus a notion of the increasing/decreasing dependency on foreign-trained health workers

Indicator number	Indicator name	Indicator element	Evidence that this indicator enables to estimate
4-05	National capacity to monitor key metrics for health workforce planning and global monitoring frameworks	Sub-indicators: 4-05.3 Ability of HRHIS (or other mechanism) to generate information to report on implementation of the WHO Global Code of Practice on the International Recruitment of Health Personnel (Yes/Partial/No) 4-05.5 Ability of HRHIS to generate information to track entrants to the labour market (Yes/Partial/No) 4-05.7 Ability of HRHIS to generate information to track exits from the labour market (Yes/Partial/No)	National capacity to monitor and report information relevant for policies on HCW migration

Gender

One feature that characterizes the health and care sector in many countries is that it is a highly feminized sector. Across the world women represent 67% of wage workers in the health and care sector *(103)*. One widespread feature of the health and care sector is a significant degree of occupational segregation by gender, both across health and care occupations and within them. Data is needed to better understand these phenomena. Notably, in addition women across the sector are often paid less for work of equal value. Women are paid an average of 76 cents for every dollar men are paid in the sector *(103)*. Also, several factors within the education sector could lead to gender imbalances.

The table below suggests selected indicators to monitor gender inequities. The first four indicators enable tracking of differences between men and women in workforce stock by occupation and by age, as well as inflows and outflows from the HLM. **Indicators 2-02 to 2-04** enable monitoring of potential differences in the HWF education and training pathways, from application to graduation. The last two indicators track the governance-level situation of women in leadership positions, and of HRHIS capacity to measure and monitor the gender pay gap.

Indicator number	Indicator name	Indicator element	Evidence that this indicator enables to estimate
1-03	Health worker distribution by age group	Number of active health workers in age group categories by occupation and by sex	Construction of the population age pyramid and identification of the different population dynamics between men and women
1-04	Health worker distribution by sex	Number of active health workers in sex categories by occupation	Share of women by occupation and identification of potential occupational segregation
1-09	Annual inflows of health workers	Number of newly active health workers by occupation, place of training and by sex	Differences between the entrance rates of men and women in the HLM
1-10	Annual outflows of health workers	Number of health workers who became inactive in the health labour market by occupation, type of exit and by sex	Differences between the exit rates of men and women from the HLM
2-02	Ratio of applications to education and training capacity	Number of applications for the first year of a health workforce education and training programme by sex	Differential applications to health workforce education and training programmes between men and women

Indicator number	Indicator name	Indicator element	Evidence that this indicator enables to estimate
2-03	Ratio of enrolments to applications	Total number of enrolments in the first year of a health workforce education and training programme by sex	Differential enrolment to health workforce education and training programmes between men and women
2-04	Ratio of graduates to stock	Number of graduates of a health workforce education and training programme by sex	Differential graduations from health workforce education and training programmes between men and women
4-03	Share of women in leadership role	Number of women in leadership roles in the Ministry of Health, defined in head-counts	Assessment of whether gender inequities are present in leadership position of the Ministry of Health
4-05	National capacity to monitor key metrics for health workforce planning and global monitoring frameworks	Sub indicator: 4-05.9 Ability of HRHIS to monitor gender pay gap (Yes/Partial/No)	Assesses the capacity of the HRHIS to measure and report on gender pay gap.

Note: The disaggregation presented in NHWA indicators is by sex as the main disaggregation used in various information systems, including civil registries. But this is used here not to describe biological differences, but as a proxy of gender describing the social identity that can lead to inequities described above.

Glossary

Accreditation

In a health workforce context, the evaluation of educational institutions and programs of study against pre-defined standards required for the delivery of education. The outcome of the process is certification of the suitability of education programmes and the capability of education institutions to deliver initial and/or continuing education. *(69)*

Active health worker

One who provides services to patients and communities (practising health worker) or whose medical education is a prerequisite for the execution of the job (e.g. education, research, public administration) even if the health worker is not directly providing services (professionally active health worker). If data are not available for practising or professionally active health workers, data with the closest definition can be used, such as "health worker licensed to practice". Categories of level are based on the definitions of OECD/Eurostat/WHO-Europe Joint questionnaire on non-monetary health care statistics. *(48)*

Activity level

- Practising: This includes all health and care personnel directly providing services to or for patients and communities.
- Professionally active: This includes practising health and care personnel as well as other personnel who are directly not providing services to patients but for whom their medical or paramedical education is a prerequisite for the execution of the job (e.g. education, research, public administration).
- Licensed to practice: This includes all health and care personnel who are registered and entitled to practice.

(43)

Age group

Subgroup of a population, disaggregated by age; the following categories are recommended (in years): < 25, 25–34, 35–44, 45–54, 55–64, ≥ 65. *(43)*

Applications

The request to access to an educational programme. *(104)*

Childcare support

Financial support to parents to pay fees to childcare institutions (e.g. day-care centres, family day care) for the services they provide to them and their children. *(79)*

Community health workers

Health workers who provide health education, referral and follow-up, case management, 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. *(46)*

Continuing professional development

Training that is beyond clinical update and includes wide-ranging competences 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, research outcomes, and attainment of the highest degree of satisfaction by stakeholders.

The form of continuing professional development (CPD) may include: courses and lectures; training days; peer review; clinical audit; reading journals; attending conferences; e-learning activity. CPD may be included in national standards of conduct, performance and ethics that govern health workers. *(105)*

Contract type

The contract type is a key employment characteristic of all workers, including health workers. Personnel may be categorized as full-time workers or part-time workers, depending on their specific contract types. Part-time workers refers to those employed persons whose normal hours of work (calculated weekly or on average over a given period of employment) are less than those of comparable full-time workers. *(66)*

Dual practice

Multiple health-related practices by a health worker in the same or different sites. Dual practice in this sense may be public-on-public, public-on-private, or private-on-private. *(106)*

Duration of health workforce education and training

This is defined as the number of years required to complete a full curriculum for each health workforce education and training programme. *(69)*

Enrolments

Number of new entrants in the first year of an education programme. *(74)*

Facility type

Facility types are categorized following the system of health accounts through the classification of health care industries. These enable arrangement of country-specific institutions in common, internationally applicable categories.

The categories are as follows:

Hospitals (HP.1)

Hospitals comprise licensed establishments that are primarily engaged in providing medical, diagnostic and treatment services that include physician, nursing and other health services to inpatients and the specialised accommodation services required by inpatients. Hospitals provide inpatient health services, many of which can be delivered only by using specialised facilities and professional knowledge as well as advanced medical technology and equipment, which form a significant and integral part of the provision process. Although the principal activity is the provision of inpatient medical care they may also provide day care, outpatient and home health care services. The tasks of hospitals may vary by country and are usually defined by legal requirements. In some countries, health care facilities need in addition a minimum size (such as a number of beds and medical staff to guarantee 24-hour access) in order to be registered as a hospital.

Residential long-term care facilities (HP.2)

The category of Residential long-term care facilities comprises establishments that are primarily engaged in providing residential long-term care that combines nursing, supervisory or other types of care as required by the residents. In these establishments, a significant part of the production process and the care provided is a mix of health and social services, with the health services being largely at the level of nursing care, in combination with personal care services. The medical components of care are, however, much less intensive than those provided in hospitals.

Providers of ambulatory health care (HP.3)

This item comprises establishments that are primarily engaged in providing health care services directly to outpatients who do not require inpatient services. This includes both offices of general medical practitioners and medical specialists and establishments specialising in the treatment of day-cases and in the delivery of home care services. Health practitioners in ambulatory health care primarily provide services to patients who visit the health professional's office, or the practitioners visit the patients at home. Consequently, these establishments do not usually provide inpatient services.

Ancillary services (HP.4, including transportation, emergency rescue, laboratories and others)

This category comprises establishments that provide specific ancillary type of services directly to outpatients under the supervision of health professionals and not covered within the episode of treatment by hospitals, nursing care facilities, ambulatory care providers or other providers. Included are providers of patient transportation and emergency rescue, medical and diagnostic laboratories, dental laboratories and other providers of ancillary services. These specialised providers may charge patients directly for their services rendered or may provide these ancillary services as benefits-in-kind under special service contracts.

Retailers (HP.5, including pharmacies)
This item comprises specialised establishments whose primary activity is the retail sale of medical goods to the general public for individual or household consumption or utilisation. Establishments whose primary activity is the manufacture of medical goods, such as making lenses, orthopaedic or prosthetic appliances for direct sale to the general public for individual or household use, are also included, as is fitting and repair done in combination with sale.

Note: Due to special medical safety and quality regulations, retailers of over-the-counter medical products and other providers of medical goods are subject to licensing and/or pharmaceutical authorisation in order to be eligible to provide their activities. Non-health care products such as cosmetics, dietetic products and natural products are excluded from health expenditures.

Providers of preventive care (HP.6)
This category comprises organisations that primarily provide collective preventive programmes and campaigns/public health programmes for specific groups of individuals or the population-at-large, such as health promotion and protection agencies or public health institutes as well as specialised establishments providing primary preventive care as their principal activity. This includes the promotion of healthy living conditions and lifestyles in schools by special outside health care professionals, agencies or organisations.

[58]

Facility/institution ownership type

Classification for ownership type:

- Publicly-owned: Facilities owned or controlled by a governmental unit or a public corporation (where control is defined as the ability to determine the general corporate policy) corresponding to the institutional sector "government units" defined in the System of National Accounts 2008.
- 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, corresponding to the institutional sector "non-profit institutions serving households" defined in the System of National Accounts 2008.
- 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 corresponding to the institutional sector "non-financial corporations" defined in the System of National Accounts 2008.

[57]

Gender

Gender refers to the characteristics of women, men, girls and boys that are socially constructed. This includes norms, behaviours and roles associated with being a woman, man, girl or boy, as well as relationships with each other. As a social construct, gender varies from society to society and can change over time. Gender is hierarchical and produces inequalities that intersect with other social and economic inequalities. *[107]*

Graduate

An individual who has successfully completed an education programme, according to the International Standard Classification of Education 2011. *[108]*

Health workforce education and training capacity

This is defined as the number of training places for a health workforce education and training programme per 10 000 population. The health workforce education and training capacity depends on various factors, such as physical infrastructure, human resources, financial resources, organizational and operational capacity, and other non-infrastructure physical inputs. *[69]*

Health workforce education and training institution

An 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 to award qualifications. 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 not-for-profit. *[108]*

Types of health workforce education and training institutions are:

- Public: Public educational institutions provide core educational services such as teaching activities and ancillary services. They include schools, colleges, universities, and training centres. They are controlled and managed directly by a public education authority or governing body (council, committee, etc.), the majority of whose members are appointed by a public authority.
- Private: Private educational institutions provide core educational products such as teaching activities and ancillary services. They include schools, colleges, universities, and training centres, that are controlled and directly managed either by a private organization such as a church, trade union, or business enterprise, or by a governing board whose members have mostly not been selected by a public authority. Whether or not an institution is private is therefore a matter of management, not funding. A school, for example, could in theory be entirely publicly funded but still be considered private because it is not managed by the government. In practice, for international comparability, any educational institution not managed by a government institution is classified as private.

Health workforce education and training place

A place may be offered by a health workforce education and training institution to an applicant who meets the published minimum admission requirements for a particular programme. The number of places denotes the capacity of an education and training institution and its programmes.

Health workforce education and training programme

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" with the objective to improve health knowledge, skills and competencies applied to health and enable the training of new health workers. Health workforce education and training programmes will often have a numerus clausus that restricts the number of places for a given programme. *[108]*

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. *[63]*

In-service training

Training received while one is fully employed in the health sector. The aim is to equip health workers or the trainers of health workers with the skills to deliver specific interventions. *[69]*

Institutional sector

Relevant sectors based on the System of National Accounts 2008: government units; non-profit institutions serving households; non-financial corporations; and households. *[57]*

International Health Regulations (IHR)

An international legal instrument that is binding on 196 countries across the globe, including all Member States of WHO. Its 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. *[109]*

Interprofessional education

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. *[110]*

Job vacancy

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. *[111]*

Leadership role

A senior government official position (e.g., Commissioner, Director-General, Director, etc.) at the national level in the Ministry of Health

Leave entitlements to care for sick family members

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. *[79]*

Lifelong learning	All general education, vocational education and training, non-formal education and informal learning undertaken throughout life, at all levels and all settings, resulting in an improvement in knowledge, skills and competences, which may include professional ethics. *(112)*
Newly active health worker	A health worker who starts activity in the given year in the given profession. *(51)*
Occupation	The concept of occupation is defined as a "set of jobs whose main tasks and duties are characterized by a high degree of similarity". A job is defined as "a set of tasks and duties performed, or meant to be performed, by one person, including for an employer or in self-employment". The National Health Workforce Accounts covers health and health-related occupations grouped according to the International Standard Classification of Occupations 2008. *(46)*
Parental leave	Employment-protected leave of absence for employed parents, often supplementary to maternity and paternity leave, and frequently, but not in all countries, following the period of maternity leave. *(79)*
Place of birth	This is defined as the place where the health worker was born. Personnel may be categorized as either foreign-born or national-born. Note that 'foreign-born' indicates the health worker's place of birth was outside the country of interest, but not necessarily that their nationality is foreign. *(101)*
Place of training	This is defined as the place of first qualification for the health worker. Personnel may be categorized as either domestic-trained, foreign-trained, or their place of training may be unknown. The foreign-trained health personnel may also be disaggregated into "foreign-trained national-born" (people born in a country who went to study in another country but have come back afterwards to practice in their home country) and "foreign-trained foreign-born". *(101)*
Pre-service education	All mandatory educational activities occurring before graduates enter into service, i.e. excluding all education and training activities done in-service and continuing professional development.
Public health workforce	The public health workforce comprises all individuals who contribute to the delivery of at least one of the essential public health functions as part of integrated services and systems. This workforce comprises diverse and multidisciplinary occupations, from the health as well as other non-health sectors. This workforce can be conceptualized as three broad groupings: core group of public health personnel who have undergone professional training and/or registration with professional bodies in public health and could be from either health or another background; health and care workers who contribute to one or more public health functions as part of their clinical and/or social care roles; and personnel from a wide group of other allied occupations who contribute to addressing the determinants of health – for instance, personnel engaged in water and sanitation, food supply chains and road safety. *(19)*
Remuneration	Average gross annual income earned by employees or those self-employed, i.e. income per year and per person, before any deductions are made for social security contributions or income tax. A person may have more than one qualifying job in any given reference period. • Income earned by employees (earnings) refers to all payments – in cash or in kind, for work done or time worked – made by their employers, and includes basic wages, overtime and other bonuses (such as for night work, work on weekends), all allowances paid by the employer (such as for working away from home or for housing) and all commissions and gratuities paid by the employer. Employers may be the government, corporations, non-profit institutions or households. • Income earned by self-employed workers refers to all payments, in cash or in kind, made by customers for goods or services, and includes capitation or fee-for-service reimbursement, bonuses, commissions, and gratuities. It should be net of operation costs/practice expenses. *(58)*
Sex	Male or Female, based on physical characteristics observed at birth. *(51)*

Social accountability	The obligation of an authorized body to direct its education, research, and service activities towards addressing the priority health concerns of the community, region, and/or nation it has a mandate to serve. *(113)*
Social determinants of health	The conditions in which people are born, grow, work, live, and age, and the wider set of forces and systems shaping the conditions of daily life. These forces and systems include economic policies and systems, development agendas, social norms, social policies and political systems. *(114)*
Status in employment	One of two categories of the total employed: (a) wage and salaried workers (employees): workers who hold a job defined as "paid employment", with 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, and (b) self-employed workers: workers who, working on their own account or with one or more partners or in a cooperative, hold a "self-employment job", i.e. one in which the remuneration is directly dependent upon the profits derived from the goods and services produced. *(93)*
Student	A person not economically active who attends any regular educational institution, public or private, for systematic instruction at any level of education. *(76)*
Subnational level	To be defined according to the specific conditions, governing structures, and constitutional provisions existing in a given country. Disaggregation based on administrative boundaries down to the first or second subnational level is recommended (depending on the structure of administrative boundaries and the size of subnational territories), without overlaps between the administrative units. Examples for subnational administrative units are states, regions, provinces, counties, and districts. *(47)*
Total expenditure on health workforce education	Current and capital expenditure expressed as a percentage of gross national income (or gross national product) in a given financial year. This indicator shows the proportion of income spent by government authorities on health workforce education over a given financial year. This can also be calculated based on gross domestic product. *(74)*
Total public expenditure	The sum of expenditures on compensation of employees (FP.1): 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). Expenditure on mandatory continuing professional development should be included within social contributions. *(58)*
Vacancy rate	The proportion of total posts that are vacant according to the definition of the job vacancy, expressed as a percentage of total positions, both filled and unfilled. *(111)*
Wage and salary	Gross remuneration in cash and in kind paid to employees, as a rule at regular intervals (usually monthly) for time worked or work done, together with remuneration for time not worked (such as annual vacation, other type of paid leave or holidays). *(115)*

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Annex 1

Development of the NHWA and its revision

The NHWA was officially launched as the data sharing mechanism for Member States at the Fourth Global Forum on Human Resources for Health, in Dublin 2017. NHWA serves to address the World Health Assembly Resolution WHA69.19, which urged Member States to "implement policy options towards consolidating a core set of human resources for health (HRH) data [...] to support national policy and planning".

The NHWA, in particular the version 1 indicators, were developed through a stepwise process that included several phases of consultation on preselected 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 a Technical Advisory Group, representing various institutions engaged in HRH data monitoring, collection and management, discussed and interpreted the results of this global consultation in a series of workshops at WHO headquarters. As a result of these discussions, a final list of indicators was defined for inclusion in the NHWA system and presented in the Handbook version 1.

In addition to the Handbook, WHO also developed other capacity-building resources, such as the NHWA implementation guide, to facilitate the national-level implementation of NHWA.

The first five years of NHWA implementation in countries has resulted in a tremendous increase in the availability of country-validated HWF information at the global level. The information gathered through the NHWA system covers all aspects of the HLM framework. Much of the available data was applied in understanding labour market dynamics in the country at national and subnational level. Such in-depth HLM studies at the national level then in turn generated further evidence that enabled the development of evidence-based policies and actions.

WHO was deeply engaged in the roll-out and implementation process with the capacity-building workshops at regional and national levels, stakeholder meetings, landscape and bottleneck analysis and development of roadmaps in countries. Throughout these activities, WHO monitored and documented feedback on the feasibility of data collection at national level and the relevance of indicators at the national, regional and global levels.

A dedicated process was launched in 2022 to formally review the indicators listed in the NHWA Handbook and the experiences and lessons learnt from NHWA implementation. It was apparent that the principles of NHWA implementation and guidance presented in the NHWA implementation guide remained valid. Much of the focus on the revision was directed toward streamlining and adapting the NHWA indicators to maintain its relevance and purpose to serve the national, regional and global agendas.

The Data Evidence and Knowledge Management Unit, Health Workforce department, WHO, carried out an assessment of the NHWA indicators based on the existing reporting rates from Member States and drafted a proposal of which indicators could be retained, revised, rejected or discussed further. This assessment was shared with all NHWA national focal points, soliciting their feedback via online survey on elements to improve in version 2. A similar online survey was sent to all WHO regional offices. Responses to these surveys came from countries covering all 6 WHO regions as well as from staff of all WHO regional offices. To add to the feedback from the online surveys, a series of short semi-structured interviews were conducted with select WHO experts from WHO headquarters and regional offices. A group of technical HRH experts (TEG) were convened in a 2 day workshop i) to review the findings from the feedback received and consultations conducted on the existing NHWA indicators; ii) to suggest either to retain, reject, modify or merge these indicators; and iii) to suggest new indicators to maintain policy relevance and address policy questions for new global and regional initiatives. Furthermore, the TEG also made recommendations on the implementation aspects of NHWA.

The NHWA is an evolving system with ongoing monitoring. The system will be reviewed and updated on a regular basis as measurement methodologies improve and changing HRH trends require.

Contributors to the development of NHWA Handbook version 1:

Principal contributors to NHWA version 1: Zoltan Aszalos, Ronald Batenburg, Mathieu Boniol, James Campbell, Zoltan Cserháti, Khassoum Diallo, John Fellows, Julian Fisher, Lars Hagander, David Hunter, Rania Kawar, Marieke Kroezen, Teena Kunjumen, Gaetan Lafortune, Anneke Schmider, Amani Siyam, Angelica Sousa, Nathalie Van de Maele, Michel Van Hoegaerden, Tana Wuliji.

Members of the Technical Advisory Group on NHWA, who provided guidance and technical input to the development of the concept and the elaboration of version 1 of the Handbook: Adam Ahmat, Edson Araujo, Zoltan Aszalos, Ronald Batenburg, James Buchan, Ariella Camera, James Campbell, Zoltan Cserháti, Martinho Dgedge, Khassoum Diallo, Matt Edwards, John Fellows, Julian Fisher, Diana Frymus, José Francisco Garcia Gutiérrez, Fethiye Gulin Gedik, Indrajit Hazarika, Rania Kawar, Ramesh Krishnamurthy, Marieke Kroezen, Teena Kunjumen, Gaetan Lafortune, Suzanne McQueen, Lisa Maniscalco, Siv Steffen Nygaard, Tom Oluoch, Galina

Perfilieva, Jessica Rose, Amani Siyam, Michel Van Hoegaerden, Keith Waters, Tomas Zapata, Alexandra Zuber.

Contribution of the Health Workforce Information Reference Group and participants to the first Delphi study on health workforce indicators: Walid Abubaker, Moses Ahabwe, Onyema Ajuebor, Hadeel Al-Qassis, Raeda Abu Al-Rub, Elvis Edem Amoaku, Jennifer Andall, Despena Andrioti, James Antwi, Joanne Ashton, David Atchoarena, Magda Awases, Asfaw Demissie Bikilla, Nava Brenner, Nilesh Buddha, Marcelle Diane Claquin, Nadia Cobb, Zoltan Cserháti, Mladen Davidovic, Claire de Burbure, Deki, Marilyn A DeLuca, John Dewdney, Marjolein Dieleman, Ousmane Diouf, Julian Fisher, Bianca Frogner, José Francisco Garcia Gutiérrez, John Gilbert, Mika Gissler, Abreham Gobena, David Gordon, Ana Paula Gouveia, Bernard Groen, Gabriel Gulis, Puspita Hayati, Elif Islek, Bertha Katjivena, Alison Kennedy, Erin Maura Kenney, Riitta-Liisa Kolehmainen Aitken, Anna Kurniati, Francis Kyereboah, Ilta Lange, Kate McNabb, Akjemal Magtymova, Juan Ignacio Martínez Millán, Kwadwo Mensah, Mohamed Elsayed Mohamed, Silvia Montoya, Grace Namaganda, Pilar Navarro, Edgar Necochea, Thu Nguyen, Edson Niyonzima, Rajesh Noah, Siv Nygaard, Tomoko Ono, Akaoma Onyemelukwe, Osama Osama, Monica Padilla, Francesc Pedro, Supa Pengpid, Andrea Porter-Chapman, Lucy Ramirez, Jack Reamy, Martha Rogers, Victor Slenter, Tracey Steedman, Sujith Raj Sundararajan, Akhenaten Tankwanchi, Ignacio Garcia Tellez, Javier Rodriguez Tello, Dorel Petru Tirt, Emmanuel Turyatunga, Michel Van Hoegaerden, Vamsi Vasireddy, Nilda Villacres, Ferruccio Vio, Caryn West, Charmaine Worrell.

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Annex 2

List of occupations covered by the NHWA

In order to provide a comprehensive overview of the HWF, most of the quantitative indicators in the NHWA are disaggregated by occupation. Although various classifications for occupations may exist at national level, it is strongly recommended that all data is mapped to the globally accepted ISCO-08, when sharing with WHO.

Given that the health occupations listed in ISCO-08 do not present the level of granularity desired for national level HWF planning, all countries are encouraged to develop their own national occupation classifications that are relevant to the country context. Having said that, all data shared or disseminated externally is best received when presented as or alongside the ISCO -08.

The NHWA data platform strives to strike a balance in maintaining the ISCO-08 classification and including additional selected health occupations that are collected as part of another initiative such as the OECD/Eurostat/WHO-Europe Joint questionnaire on non-monetary health care statistics, and occupations that are globally relevant but are not explicitly listed in ISCO-08.

The list below provides detailed occupation titles and corresponding ISCO-08 codes useful for monitoring the HWF. This list should be adapted and completed as much as possible to national priorities.

Occupational title	Captured in modules				ISCO-08 code
	M01	M02	M03	M04	
1 – Medical Doctors	x		x		221
1.1 – Generalist Medical Practitioners (incl. family medicine practitioners)	x	x	x		2211
1.2 – Specialist Medical Practitioners	x	x	x		2212
1.2.1 – General Pediatricians Practitioners	x				
1.2.2 – Obstetricians and Gynecologists	x				
1.2.3 – Psychiatrists Practitioners	x				
1.2.4 – Medical group of Specialists Practitioners	x				
1.2.5 – Surgical group of Specialists Practitioners	x				
1.2.6 – Other Specialists Practitioners	x				
1.3 – Medical doctors not further defined	x				

Occupational title	Captured in modules				ISCO-08 code
	M01	M02	M03	M04	
2 – Nursing Personnel	x		x		
2.1 – Nursing Professionals	x	x			2221
2.2 – Nursing Associate Professionals	x	x			3221
2.3 – Nurses not further defined	x	x			
3 – Midwifery personnel	x		x		
3.1 – Midwifery Professionals	x	x			2222
3.2 – Midwifery Associate Professionals	x	x			3222
3.3 – Midwives not further defined	x	x			
4 – Dentists	x	x	x		2261
5 – Dental Assistants and Therapists	x				3251
6 – Dental Prosthetic Technicians	x				
7 – Pharmacists	x	x	x		2262
8 – Pharmaceutical Technicians	x				3213
9 – Paramedical Practitioners	x				2240
10 – Medical and Pathology Laboratory scientists	x				
11 – Medical and Pathology Laboratory Technicians	x				3211
12 – Medical Imaging and Therapeutic Equipment Technicians	x				3212
13 – Environmental and Occupational Health Professionals	x				2263
14 – Environmental and Occupational Health Inspectors/ associates	x				3257
15 – Traditional and Complementary Medicine Professionals	x				2230
16 – Traditional and Complementary Medicine Associate Professionals	x				3230
17 – Community Health Workers	x	x		x	3253
18 – Personal care workers in health service	x				532
18.1 – Health Care Assistants	x				5321
18.2 – Home–based Personal Care Workers	x				5322
18.3 – Personal care workers in health service not elsewhere classified	x				5329
19 – Physiotherapists	x				2264
20 – Physiotherapy Technicians and Assistants	x				3255

Occupational title	Captured in modules				ISCO-08 code
	M01	M02	M03	M04	
21 – Dieticians	x				
22 – Nutritionists	x				
23 – Audiologists and Speech Therapists	x				2266
24 – Optometrists and Ophthalmic Opticians	x				2267
25 – Dispensing Opticians	x				3254
26 – Medical Prosthetic Technicians	x				
27 – Medical Records Technicians	x				3252
28 – Medical Assistants	x				3256
29 – Ambulance Workers	x				3258
30 – Social work and counselling professionals	x				2635
31 – Social work associate professionals	x				3412
32 – Biomedical engineers	x				2149
33 – Psychologists	x				2634
34 – Medical secretaries	x				3344
35 – Managerial staff	x				
36 – Administrative staff	x				
37 – Health information systems personnel	x				
38 – Engineering and maintenance staff	x				
39 – Other non–medical professional staff	x				
40 – Other non-medical support staff	x				
41 – Epidemiologists (incl. FETP course graduates)	x				
41.1 – Field Epidemiologists	x				

x = Possible to enter data in the NHWA data platform.

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