POLICY BRIEF

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National health workforce accounts:

The knowledge-base for health workforce development towards Universal Health Coverage[1]

WHO's ***Global Strategy on Human Resources for Health: Workforce 2030 (GSHRH)***, to be submitted to the World Health Assembly in May 2016, calls for investments in strengthening country analytical capacities of HRH and health system data on the basis of policies and guidelines for standardization and interoperability of HRH data. The GSHRH puts forward the adoption of a National Health Workforce Account (NHWA) as a harmonized, integrated approach for annual and timely collection of health workforce information [1].

One of the key health workforce challenges at country level is the availability, completeness and quality of data to support evidence-based policy and planning. Multiple sources need to be consulted to acquire key information on the size, characteristics and dynamics of the health workforce. However, data quality, comprehensiveness and interoperability are often limited. Despite the reasonable progress achieved in strengthening human resources for health (HRH) information, greater efforts are needed to further realize the benefits of quality workforce data to inform national, evidence-based policy decisions and to harmonize definitions and classification of all health and social care providers across sources, countries and time. Moreover, even when the quantity and quality of the information is adequate, there are further limitations on the effective use of these data for strategic planning and policy-making by dedicated health system professionals.

What is a national health workforce account?

A national health workforce account (NHWA) originates from contemporary evidence for a 21st century health workforce agenda [1,2] and builds on the WHO Minimum Data Set [3], the Toolkit for Monitoring and Evaluation of HRH [4], and the experience of the OECD/Eurostat/WHO-Europe's Joint Questionnaire [5].Its purpose is ***to standardize the health workforce information architecture and interoperability as well as tracking HRH policy performance toward universal health coverage.*** The NHWA takes inspiration from the success of the WHO-OECD-Eurostat programme on the Systems of Health Account (SHA) [6], and will define core indicators and data characteristics—in a modular format—that can be progressively measured to monitor workforce trends, enable improvements in workforce/health systems planning and holistically support the comparability of the health workforce landscape nationally and globally. The development of the NHWA is led by the WHO in partnership with OECD, WB, USAID, ILO, UNESCO and other normative and technical agencies.

1 This policy brief is a joint effort of the members of the Technical Advisory Group on the development of National Health Workforce Accounts following their first meeting in Geneva – 9-10 April, 2015

World Health Organization

What are the key gains and benefits?

Health workforce information is commonly produced by four major sources: national population censuses, labour force and employment surveys, health facility assessments and routine administrative information systems (including registries on public expenditure, staffing and payroll as well as professional training, registration and licensure). Data sources in their own right, belong within different sectors and stakeholders and in many occasions lack a clear mandate on standardization. No one source can avail the entirety of the data items needed for a comprehensive national health workforce situational analysis, and commonly availability is somewhat restricted to a few core health occupations, or the public sector only, or only on employed health professionals.

The implementation of NHWA provides for:

- The standardization of data collection that would reduce the burden on national reporting and improve consistency and comparability of data over time
- The comparability of health workforce classification which remains a key challenge to define: (i) scope of work relative to qualifications, skills and competencies (ii) current activity (practicing or professionally active) relative to being licensed to practice, and (iii) alignment of national classification to ISCO-08 for international comparability.
- The conversion from head counts to FTE is an important step to enhance the efficiency of national planning and policy processes, but it remains a great challenge even in countries that have well-developed information systems.
- A requisite of robust sustainable national reporting is a systemic inter-sectoral coordination to support the mandate and regularity of reporting amongst multiple stakeholders.
- The end-results of defining indicators by policy-questions would cater separately to those required for national-level planning purposes and international comparisons enabling intelligence generation and improved evidence-based policy development and planning.

A framework for developing the NHWA

A NHWA addresses the information needs for evidence-based policy and is aligned with the health labour market (HLM) framework for UHC (Figure 1) [7]. The framework provides a comprehensive picture of the HLM dynamics and the contribution of four groups of health workforce policies (production, inflows and outflows, distribution and inefficiencies, and regulation of the private sector) and the interplay those have

The states of change with NHWA

Current status	NHWA progressive implementation
Diverse data sources on HRH information	A seamless HRH information system integrating various sources of data
Lack of interoperability	Well-defined, feasible to collect data elements as foundationally defined by the MDS
Incomplete and poor quality data	Modular data-quality checks and progressive coverage
Weak linkages between data and its use	Data-driven decision processes; policy-driven data collection
Insufficient data management capacities	Phased implementation, with capacity building national workshops and follow-up

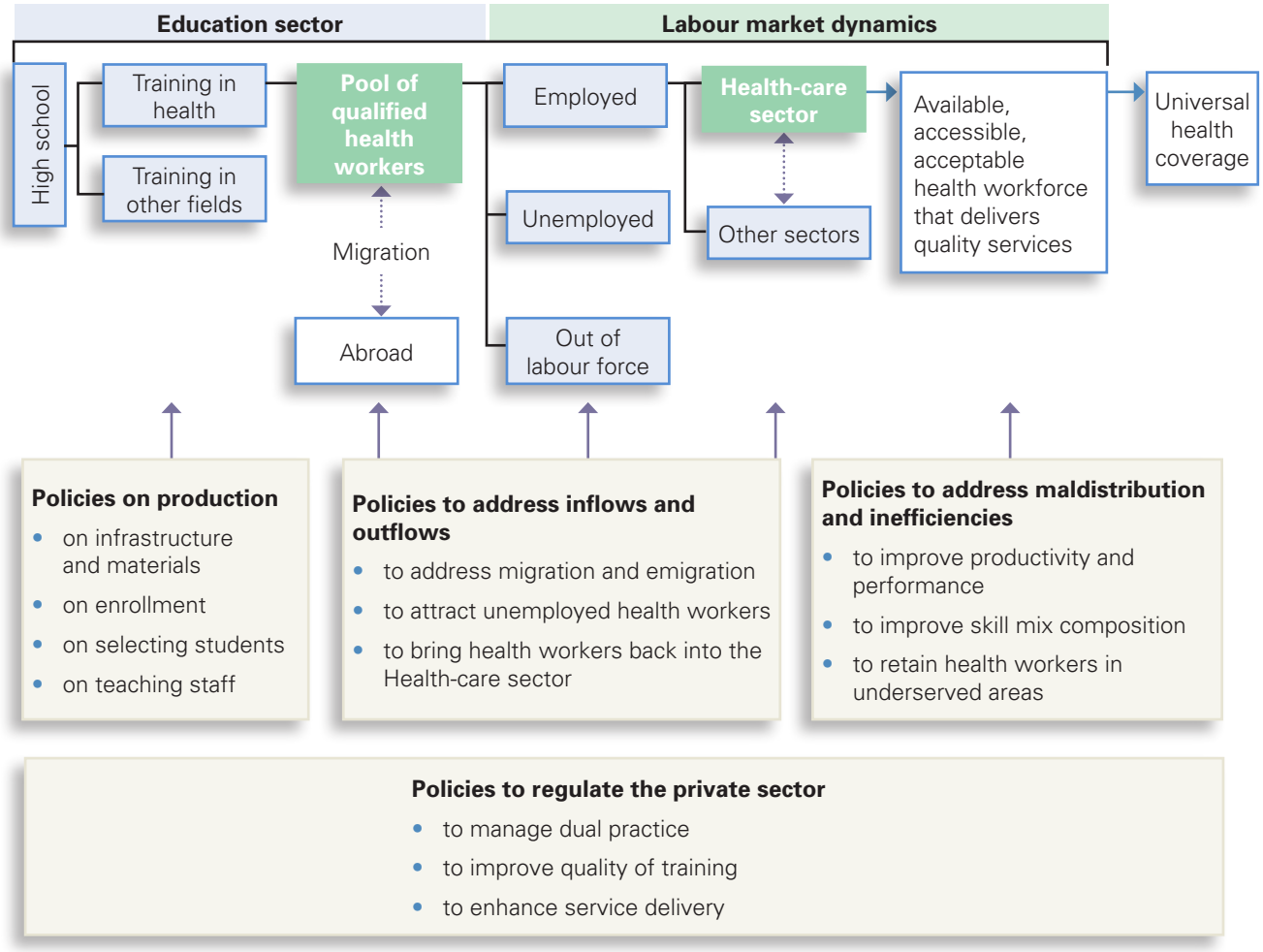
in ensuring equitable access to quality services. The modules of the NHWA are (i) shaped by the underlying policy questions in the four groupings, and (ii) populated by an effective and core set of indicators to define the necessary measurements.

In broad terms a range of indicators are in existence (in use and recommended by the published guidelines and literature) to advocate and support measurements around the HLM framework [4,5]. More positively, 2 core health workforce indicators (among 100) have been agreed on by a multi-agency working group consisting of 19 agency representatives to rationalize existing reporting demands in monitoring progress towards UHC while reducing the reporting burden and reporting requirements on countries (Figure 2).

Structuring NHWA for national use and global monitoring

The prime purpose of NHWA is to structure the information base to generate reliable HRH information and evidence to enable planning, implementation and monitoring of workforce policies towards UHC**.** Additionally this enhanced flow of information would also enable more sophisticated research to be performed about future trends of health workforces, systems and resilience planning. The modules and indicators should be built with a clear "policy-relevance", feasible data collection opportunities and valued levels of disaggregation (relative to HRH categories, bio-demography, places, status and sectors of employment). Naturally, NHWA builds on and strengthens the data linkages and interoperability of existing Human Resources for Health Information Systems (HRIS) and sub-systems.

Figure 1. Policy levers to shape health labour markets for UHC



Source {7}

Figure 2. Health workforce indicators in the Global Reference List of 100 Core Health Indicators (UHC):

Health Workforce		
Health worker concentration	N of health workers per 1000 population	By cadre (physicians, midwives, nurses) Place of employment Urban/rural Subnational (district)
Output training institutions	N of graduates from health workforce educational institutions (including schools of dentistry, medicine, midwifery, nursing, pharmacy) during the last academic year per 1000 population	Level and field of education Also: sex, age at graduation, home postcode on entry to education institution

Source {8}

NHWA would also require countries and regions to exchange data through a joint reporting mechanism. WHO's Global Code of Practice on the International Recruitment of Health Personnel (9) and the OECD/ Eurostat/WHO-Europe's Joint Questionnaire(5) are examples of mandated consensus on health workforce reporting and the strengthening of global public good.

In moving forward with the development of the NHWA, **Figure 3** proposes a schema of 10 modules envisaged ***to have a spine-structure*** of a core set of indicators:

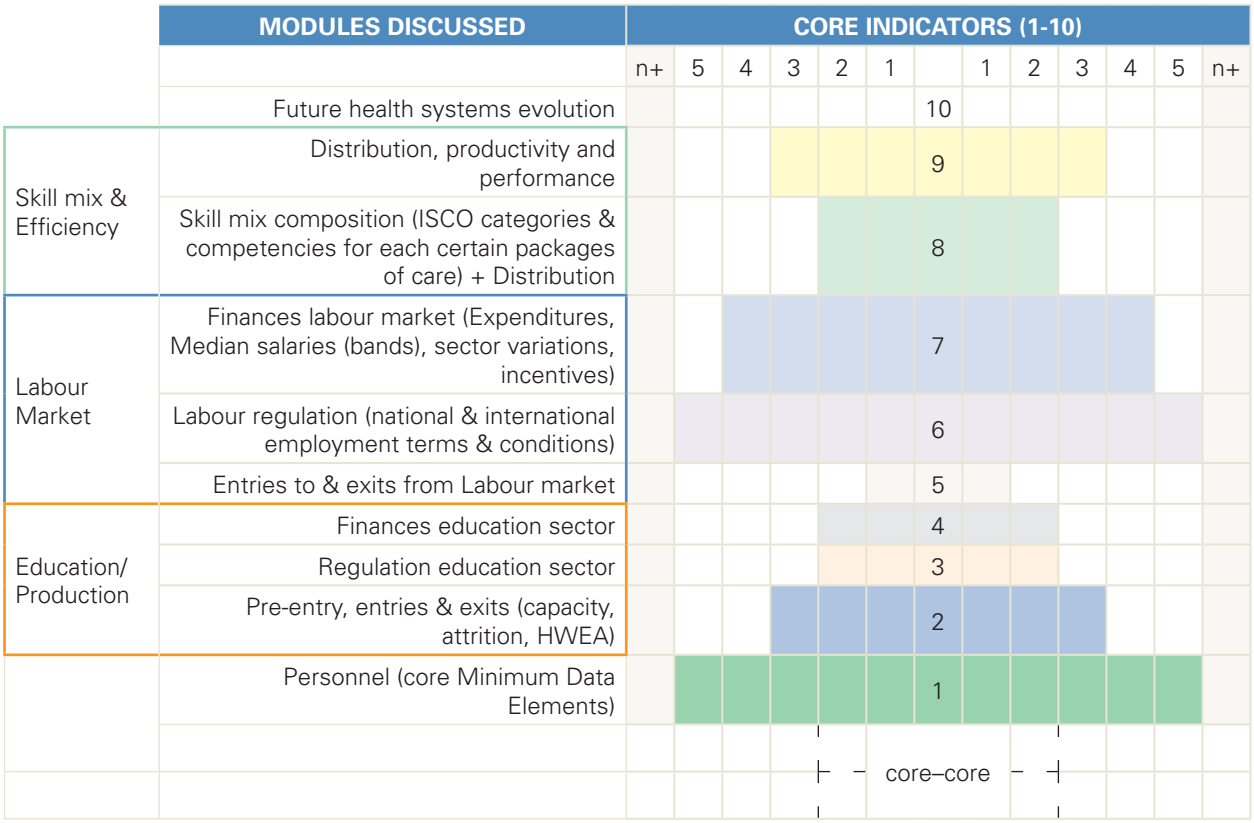
i. The **Personnel (Core Minimum Data Elements) module 1,** provides a baseline structure of minimum data essential for any HRIS. From 2011-2013, WHO and the US Centers for Disease Control and Prevention (CDC) partnered with several Ministries of Health (MOH) to conduct functional HRIS requirements analyses, and establish the first normative guidance for a Minimum Data Set (MDS) of elements essential for a global standard HRIS. CDC developed a methodology to better understand the business processes of HRH planning and management in select countries, and to identify the essential data elements any HRIS should possess in order to ensure effective HRH data management and use. As part of the validation process, this HRIS MDS was used to conduct alignment assessments on several locally-developed CDC-supported HRIS [10]. Although these systematic "gap analyses" found the majority of the data elements were present in the databases, the assessments revealed that not all the elements have equal weight. Some elements exceeded current needs of MOH and regulatory bodies, and might initially be burdensome for countries with complex health systems. A core set of 10 items, each comprising a few data elements, for a Health Workforce Registry was identified [3], and is promoted as a starting step to facilitate countries understanding of the baseline data requirements to fully describe "distribution[2]". The U.S. President's Emergency Plan for AIDS Relief (PEPFAR) now intends to use the Health Workforce Registry MDS to ensure standardized data collection in each HRIS it supports.

A recent review of over 109,000 health worker records from Liberia, Nigeria and Uganda (where the open source ***iHRIS*** software has been applied) demonstrates that rapid adoption and standardization are feasible in low- and middle-income countries. Health workforce records are already compliant with the majority of the data elements within the MDS: where 8 of the 10 data sets have greater than 50% compliance. This type of analysis can be used to measure the completeness of national health workforce information systems and readiness for health workforce data analysis, sharing and use for policy, planning and deployment (Figure 4).

Countries can start by conducting a compatibility check of their existing HRIS and embark on an iterative process to prioritize and expand the system to capture the full HRIS MDS, and additional local data elements for numerous functional components as needed (for example in planning, recruitment and management). Identifying absent or unaligned

2 Geographical location, age, sex, sector, licensure – as critical determinants of equity

Figure 3. National Health Workforce Accounts (NHWA) – Draft Schema



elements in either a Health Workforce Registry or a fully developed HRIS and addressing the prioritized gaps will increase the availability and quality of critical data, and empower countries to conduct more strategic analyses, improving health workforce planning and ultimately public health outcomes.

ii. The **Education/Production (modules 2, 3 & 4)** involve a range of key indicators to evaluate health workforce education, training and production. The education module brings in the link with the "WHO Global Toolkit for evaluating health workforce education"[11] with a core set of indicators around 6 domains: student selection; career and retention; curricula, faculty and education; accreditation and regulation; governance, policy and financing and health workforce planning. Further linkages will also be established with the OECD's interoperable standardization of national education accounts[12].

iii. The **Labour Market (modules 5, 6 & 7)** bring into focus the need for improved data on health workers pay structure (earnings, incomes and wages), contracts, working hours, social protection and other employment characteristics**.** These data will facilitate the progressive implementation and review of casual and descriptive labor market analysis [13,14] essential for HRH monitoring and planning. Data to examine the causal effects of policy change include these descriptive data, but often contain more variables and are also longitudinal to enable the researcher to control for as many factors influencing behavior as possible [15]. Thus, the need to extend, augment and build on existing data from multiple sources (administrative records, labour surveys and others). Module 5 on "Entries to & exits from labour market" would involve key elements to measure attrition (loss of qualified (emigration, temporary leave, unemployed), loss (retirement, death)) and the differentials of exits (by cadre; motivation; rural practice). The implementation of the migration module in the 2014-2015 round of the Joint Questionnaire [5] testifies to ***the necessity of a cross-country approach*** to gathering mobility data to meet the demand for understanding flows and mobility patterns overtime especially in the context of a liberalized labour market. A complementary part to the module should be to gather information on

Figure 4. Comparative analysis of the availability of WHO recommended HRH Minimum Data Set in country *iHRIS* systems

recruitment, deployment and retention practices[3] to better understand trends in migration patterns. A recent rapid review of retention strategies [16] demonstrated that existing indicators are those of process and the need for routine measurement that can define baselines to be retained, at which level of service-provision and for which time-frame. Module 6 on "Labour regulation (national & international employment terms & conditions)" would include extended work with ILO and others on the determinants of the changing profile of employment (fixed, contractual, voluntary, multiple) and the implications on employment stability. Occupational safety of health workers and the growing incidence of violence directed at health care personnel are critical issues which warrant closer consideration as key aspects in monitoring health workforce development in the future [17].

iv. The **Skill mix[4] & Efficiency (modules 8 & 9)** supports the understanding of the quality-based aspects of service delivery (inter-related to productivity and performance), the versatility in workforce skilling (increasingly in social and voluntary care) and the resilience of those given the emerging population needs and adaptation to technical progress.

v. Finally, the **"Future Health Systems evolution" module 10** is intended to describe the requirements of research and development in the science of the health workforce, with particular attention to the potential of using qualitative data to understand factors, key drivers and trends that will shape or stress health systems in the future [18]. Essentially, two dimensions of impact will be considered: (i) those related to outputs focusing on indicators of productivity or efficiency (such as, number of consultations per doctor per year, number of surgeries per surgeon or surgery staff per year, etc.) predominantly covered in the "Skill mix & Efficiency modules"; and (ii) those related to the overall impact on population health outcomes[5] as the ultimate reach of the HLM framework (such as, indicators of patient experience and outcomes for different services, survival/mortality rates for cancer, IHD and other life threatening disease, perhaps some aggregate measures of "avoidable mortality").

3 With consideration for the collection of qualitative information

4 Skill mix refers to the different categories of occupations as per the ISCO-08 and further includes a description of competencies to perform certain procedures

5 Those require concerted research and development steps in the medium to longer term.

Operationalizing National Health Workforce Accounts

NHWA will be supported by a purposive global measurement and accountability digital tool which is primarily fed by a national reporting mechanism. At the national level information will be provided by a coordinated country system (HRIS, HMIS, HRH registries, HRH observatory as appropriate, labor force and surveys and censuses). Imperatively, at the national level, the development of NHWA and the underlying HRIS should be professionalized through targeted capacity-building initiatives and the establishment or strengthening of relevant institutions [2].

NHWA will draw on the regional and global experiences of joint data collection as that of the annual reporting in the OECD/Eurostat/WHO-Europe joint questionnaire [5] which demonstrates the characteristics and benefits of standardizations and flexibilities in joint reporting and the gradual progression overtime towards completeness. The development process will also be informed by the culmination of the shared process involving 37 EU partners of the Joint Action EUHWF [18] recently launched recommendations on key planning indicators and the related minimum set of data. Those may be adopted by the EU Member States as a common necessary tool kit to provide basic forecasting and enable a basic planning process to take place as well as improvement of those already using quantitative and qualitative methods.

Progressively, the digital tool would improve on its capability to further monitor the extent of the NHWA use in national situational analysis, strategic planning and monitoring and evaluation exercises.

Calls for investments in NHWA

The increased demand for health workforce in the post-2015 era is a resounding call for investments in building sustainable, well-integrated health workforce information systems. Countries, and their health-involved partners, will benefit greatly if such systems are based upon a standardized architecture with a framework of policy levers, core indicators, and data-collection, analysis and dissemination strategies.

NHWA provides an interoperable data architecture to progressively improve the availability and use of HRH data and evidence, and enhanced governance and accountability mechanisms at national and global levels, enabling all actions geared at transforming the future health workforce [1].

Through a global digitized system of reporting, ***NHWA can break new grounds in standardizing and optimizing HRH data collection whilst facilitating capacity building, knowledge exchange and research advocacy.***

At national-level:

- Baseline investments in the MDS would enhance countries HRIS standardization and interoperability and improve data quality and completeness.
- Cross-cutting investments—in all modules of NHWA—would comprehensively meet the demands of data-driven plans and policies, as well as critical investments in creating the institutional background and capacity building.
- NHWA can establish casual linkages with other health system inputs and steer resources available for improved health outcomes.
- NHWA can enable and support systematic research about future health system developments and resilience planning.

At global monitoring level:

- NHWA can facilitate a common "status report" as a cross- country data collection effort to encourage countries' ability to improve the quality, comprehensiveness and comparability of their data with time.
- NHWA can facilitate a common platform to foster cross-country support for data collection and health workforce policy reform, and, cross-country information exchange and shared experiences.

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