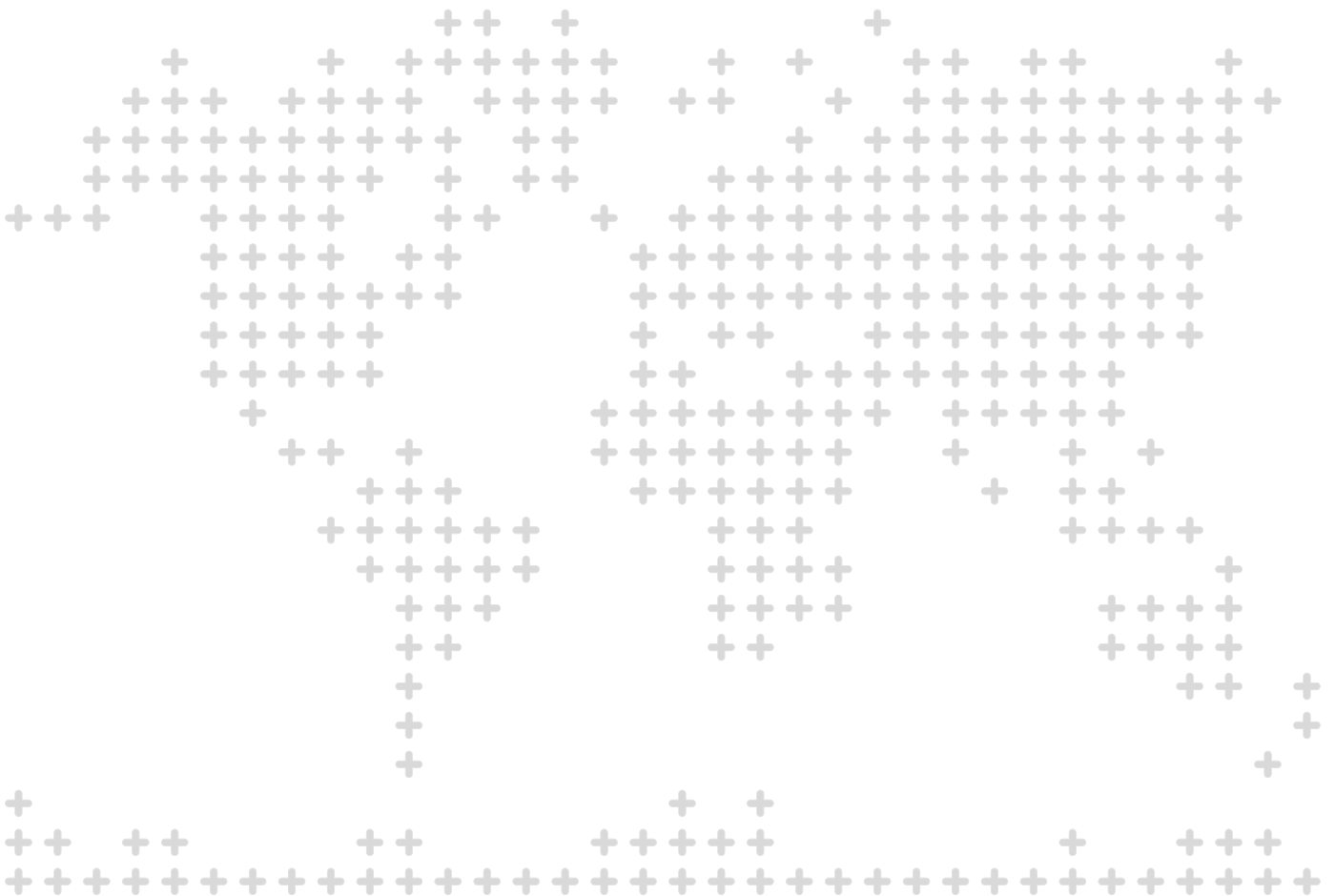



Health labour market analysis guidebook



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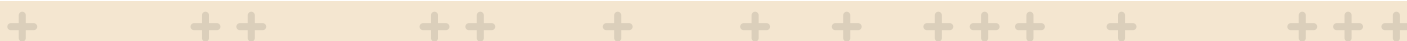
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Foreword

The health workforce is at the centre of every health system and is key to achieving universal health coverage. The health and social sector is a fast-growing sector in many countries; for instance, around 1 in 10 jobs in OECD countries are in the health and social sector. However, many countries are also grappling with major health workforce challenges such as critical shortages in the supply of workers, an inadequate mix of skills in the workforce, inequitable geographical distribution of health workers, and gaps in their competencies, motivation and performance.

Adopting an innovative approach, WHO developed a health labour market framework to analyse the health labour market and facilitate the development of appropriate policy recommendations. This framework is at the core of the Global Strategy on Human Resources for Health: Workforce 2030, and its importance was highlighted by the High-Level Commission on Health Employment and Economic Growth (2016).

A health labour market perspective broadens our understanding of the health workforce and allows us to better understand the forces that drive health worker shortages and surpluses, skills mix and geographical imbalances, and suboptimal performance, and develop effective policies to address these issues. The relevance of this approach has been highlighted even more by the COVID-19 pandemic, which has demonstrated how essential the health and care workers are to the health system, and how important it is to understand the dynamics of the health labour market in such circumstances.

This health labour market analysis guidebook provides a comprehensive overview of the health labour market, offers guidance on how to analyse and understand its dynamics, and identifies key steps to undertake a health labour market analysis. It also facilitates the implementation of standardized health labour market analysis approaches in supporting countries to answer key policy questions relating to health and care workers.

The guidebook builds on a unique combination of technical expertise, country work experiences, and existing literature. Inputs from technical experts in areas such as health workforce, labour and macroeconomics, political economy, education, gender equity and data management allowed for a more extensive analysis of all components of the health labour market.

This guidebook will contribute to the development of strategies, actions and guided investments aimed at strengthening the health workforce. It comes when the need to protect and safeguard health and care workers, invest in education and training, and create decent jobs within the health and care sector is front and centre. This is because 2021 is designated as the International Year of Health and Care Workers.

In conclusion, implementing the contents of this guidebook facilitates the actions needed to fulfil the key messages of the Year of Health and Care Workers and achieve health-related global goals by protecting and investing in the health and care workforce.

Jim Campbell

*Director
Health Workforce Department*





Preface

Objective and target audience for this guidebook

- The objective of this guidebook is to facilitate the implementation of standardized health labour market analysis (HLMA) approaches to help countries answer key policy questions relating to human resources for health issues.
- The guidebook is a training resource primarily aimed at analysts, planners, researchers and trainers.
- The guidebook is part of an HLMA toolkit. This toolkit, in addition to the guidebook, includes the following: (a) additional training material; (b) a rapid guide for HLMA, which is a shorter and more pragmatic version of the guidebook aimed at those interested in undertaking an overall rapid HLMA; and (c) a briefing note to inform decision-makers about HLMA.

Purpose of guidebook

The HLMA guidebook will help users to:

- know, define and interpret the basic concepts, theories, principles and tools that inform an HLMA;
- conduct the process for an HLMA at country level;
- produce HLMAs in accordance with a standardized approach and key steps;
- identify and explain the root causes of health labour market mismatches, such as shortages, surpluses, imbalances in the skills mix, and imbalances in the the distribution of health workers by area, type, and level and location of services;
- identify policy options to prevent these deficiencies or to mitigate their effects;
- identify the feasibility and conditions of effective implementation of policy recommendations.



Contents of guidebook

The guidebook provides:

- 12 modules divided into four main parts:
 - conceptual and practical foundations of a health labour market analysis
 - analysing core health labour market elements
 - analysing overarching health labour market issues
 - from health labour market analysis to policy;
- modules that are structured in a standardized way:
 - a brief presentation of the topic covered by the module in the context of the health labour market framework
 - a brief theoretical section when relevant
 - a core section presenting and discussing the key steps for the analysis
 - a section on indicators and data sources;
- references that enable users to go into greater detail in the study of each module;
- a glossary of terms used in conducting an HLMA.



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Section 4: From health labour market analysis to policy

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Abbreviations

ASEAN	Association of Southeast Asian Nations
BWS	best–worst scaling
DCE	discrete choice experiment
ECOWAS	Economic Community of West African States
EiH	those employed in the health sector
GDP	gross domestic product
HIS	health information system
HLMA	health labour market analysis
HRHIS	human resources for health information system
ILO	International Labour Organization
ISCED	International Standard Classification of Education
ISCO	International Standard Classification of Occupations
MGMA	Medical Group Management Association
NGO	nongovernmental organization
NHWA	National Health Workforce Accounts
OECD	Organisation for Economic Co-operation and Development
PEPFAR	United States President’s Emergency Plan for AIDS Relief
PIAAC	Programme for the International Assessment of Adult Competencies
RORE	rate of return to education
SADC	Southern African Development Community
SDG	Sustainable Development Goal
Sida	Swedish International Development Cooperation Agency
UNFPA	United Nations Population Fund
UNICEF	United Nations Children’s Fund
USAID	United States Agency for International Development
WAEMU	West African Economic and Monetary Union
WHO	World Health Organization





Summary





The health workforce is at the centre of every health system. The knowledge, skills, attitudes and motivation of health workers play a crucial role in delivering health services to those in need, which contributes to improving health outcomes and the well-being of the population. Yet, the health workforce often turns out to be the weakest link of the health system.

Many countries are grappling with major health workforce challenges: critical shortages in the supply of workers, an inadequate mix of skills in the workforce, and an inequitable geographical distribution of health workers, as well as gaps in their competencies, motivation and performance. These challenges, combined with projected needs-based shortages of health workers by 2030, primarily in low- and lower-middle-income countries, impede progress towards the achievement of universal health coverage, global health security and the health-related Sustainable Development Goals (SDGs). In that context, building a fit-for-purpose and fit-to-practise health workforce is critical.

Analysing the health labour market is essential to achieve a better understanding of the forces that drive health worker shortages and surpluses, skills mix and geographical imbalances, and suboptimal performance, and to develop effective policies to address these issues. A well conducted health labour market analysis (HLMA) across all sectors of the market (public and private) provides reliable information on the main dimensions of the performance of the health workforce, for example, its availability, accessibility, acceptability and quality. An HLMA can raise policy- and decision-makers' awareness of how and why their country's health labour market changes, and can help them answer important questions in relation to some of its dysfunctions and challenges and formulate appropriate responses.

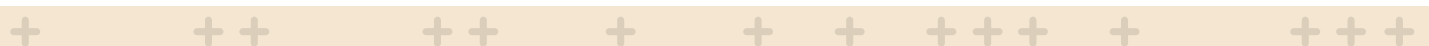
Objective of the HLMA guidebook

The central purpose of this guidebook is to facilitate the implementation of standardized HLMA approaches in supporting countries to answer key policy questions relating to human resources for health. The tools it proposes aim to assist in the generation of evidence to address health workforce policy questions more effectively.

This guidebook supports implementation of the WHO Global Strategy on Human Resources for Health: Workforce 2030 (2016) and is in line with the recommendations and action plan of the High-Level Commission on Health Employment and Economic Growth (2016).

Target audience of guidebook

This HLMA guidebook is a training resource primarily aimed at analysts, planners, researchers and trainers, but its contents are of value to all relevant stakeholders, including public and

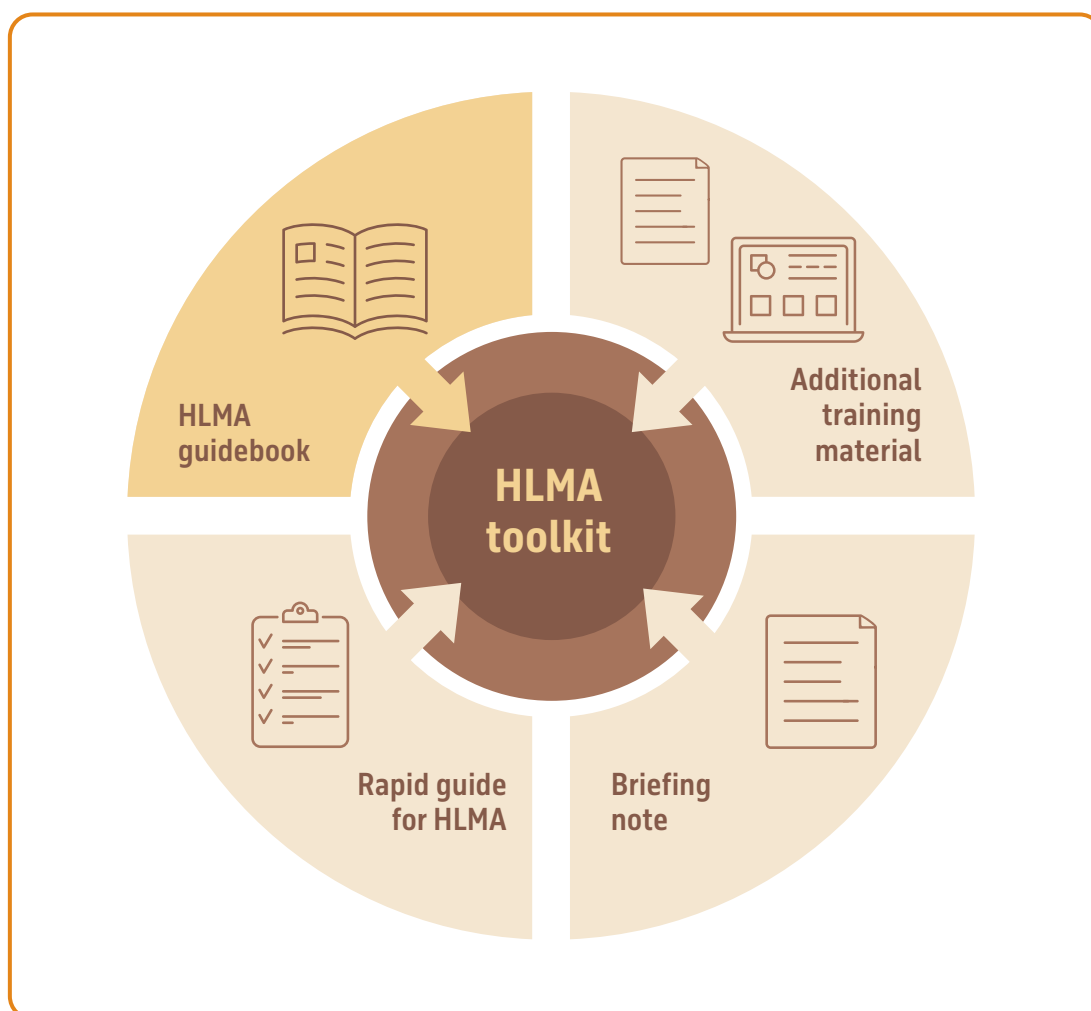


private sector employers, professional associations, education and training institutions, labour unions, bilateral and multilateral development partners, international organizations, and civil society.

The guidebook is part of an HLMA toolkit

The guidebook is part of an HLMA toolkit, as depicted in **Figure S.1**, which includes additional training material, a guide for a rapid HLMA (a shorter version of the guidebook aimed at those interested in key elements for undertaking a rapid HLMA), and a briefing note to inform decision-makers about HLMA.

Figure S.1 HLMA toolkit components





Structure of the guidebook

The guidebook consists of 12 modules divided into four sections logically sequenced:

- **Section 1:** Conceptual and practical foundations of a health labour market analysis
- **Section 2:** Analysing core health labour market elements
- **Section 3:** Analysing overarching health labour market issues
- **Section 4:** From health labour market analysis to policy

Module 1. Main concepts and analytical framework

Module 1 presents key concepts and an analytical health labour market framework. A labour market can be defined as the mechanism that facilitates the fulfilment of a demand for services by those who wish to or are able to supply labour. The dynamic between the number and the kind of jobs offered on the market and the number and kind of health workers available and willing to accept a job offered is central to determining the level of employment and the configuration of the labour market and its outcomes.

A labour market can be characterized according to different criteria, including geographical (local, national or international); occupational (by occupation title or category, specialized or unspecialized); sectoral (private, public, faith based, formal or informal); as well as by gender dimensions. In the labour market, remuneration, conditions of service and the working environment play a key role in determining workers' decisions relative to the time they want to dedicate to work, whether to work in the public or private sector or in both, or whether to work in an urban or rural setting. There is no single homogeneous labour market, but rather many labour markets for each different type of labour that often overlap, leading to competition between different labour markets.

Figure S.2 presents a conceptual representation of the health labour market. This framework is a key element of the WHO Global Strategy on Human Resources for Health: Workforce 2030. This health labour market framework enables a better understanding of the health workforce flows and suggests potential policy approaches through which these can be altered to move towards universal health coverage. This framework provides a basis for the HLMA.

The framework can be divided into two parts, one related to the education sector, and one more specifically to the health labour market; both are directly or indirectly influenced by the economy, political environment, population demographics and other broad societal factors. **Figure S.2** shows different health worker flows in the labour market, as related to unemployment, migration, and employment in the health sector or in other sectors. Those flows illustrate the dynamics between the demand for and supply of health workers, which is central to health labour market outcomes.

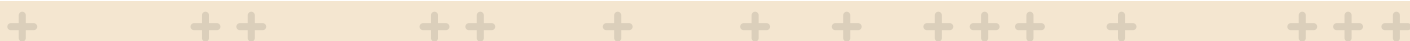
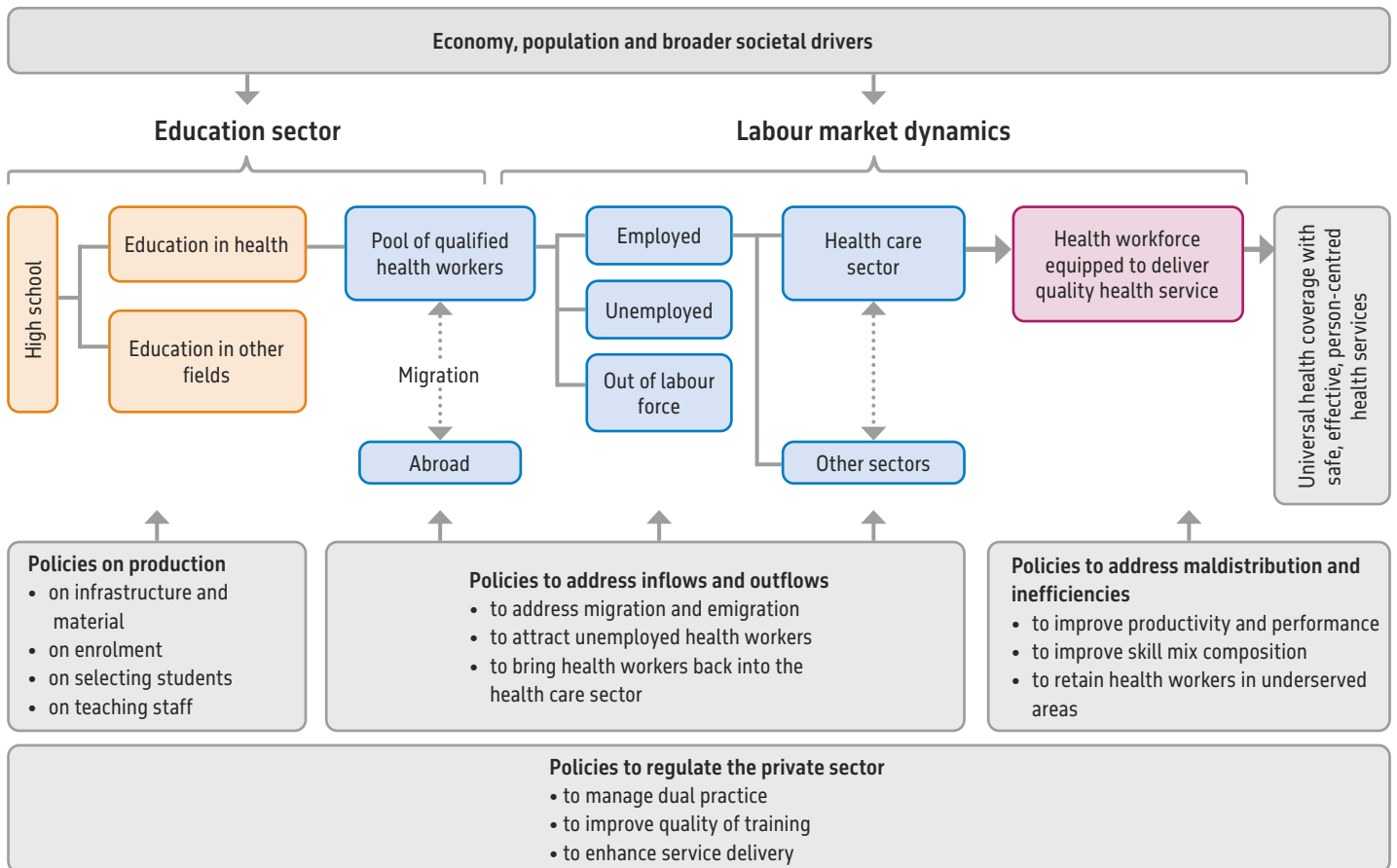


Figure S.2 Health labour market framework for universal health coverage

The health labour market framework helps to analyse and develop policy questions in the following four main areas: production, inflows and outflows, maldistribution and inefficiencies, and regulation.

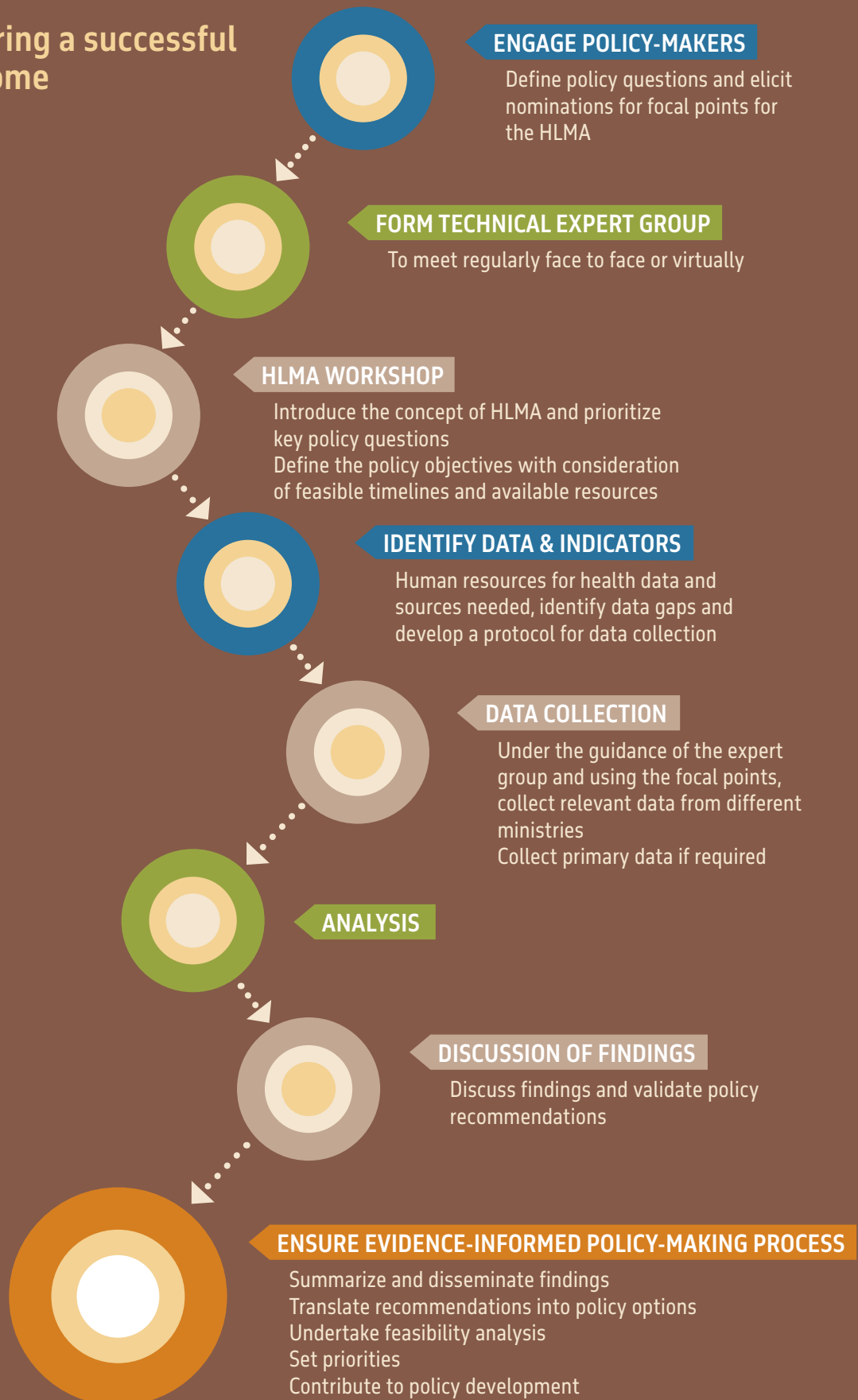


Module 2. Practical sequence for the process of conducting a health labour market analysis

An HLMA is a bottom-up, country-led process in terms of ownership, engagement and collaboration. Module 2 proposes a process depicted in Figure S.3. However, all HLMAs should be done in a manner that reflects the unique context of each study.

Figure S.3 Practical steps for undertaking an HLMA

Ensuring a successful outcome



Module 3. Data sources and collection tools: National Health Workforce Accounts

An HLMA covers a wide range of topics, including human resources information, education, finance, and regulation. Module 3 presents how to identify, collect and use essential data on the health workforce for the conduct of an HLMA.

An HLMA requires data from several stakeholders. Various sources need to be assessed and combined. The task to collect data from various sources, in different places, using different formats and nomenclatures, is simplified by the availability of a human resources for health information system [HRHIS]. Within that context, the National Health Workforce Accounts [NHWA] offer a system to facilitate this process of harmonization. Because NHWA indicators are aligned to the health labour market framework, they are of direct utility for HLMA.

Module 4. Political economy analysis

Module 4 presents a component of HLMA that aims at identifying the political factors, namely the power relationships between the various actors and their positions on specific issues within the context of the policy processes that enable success or prevent failure at different levels of the market and thereby provide information on potential corrective responses. A political economy analysis is a useful tool that analyses these political factors, and it can serve to alert policy-makers to the importance of the political environment in shaping the health labour market. The module first identifies ways in which the health labour market may not function perfectly and why this happens. Health labour market issues often reach the political agenda as the result of a crisis, such as acute shortages or a sanitary shock such as the COVID-19 epidemic. The main section of the module introduces strategies and tools to support a political economy analysis and discusses how to use its results. Implementing interventions that aim at changing the structure or dynamics of a health labour market is a highly political exercise. **Figure S.4** presents key steps for a political economy analysis.

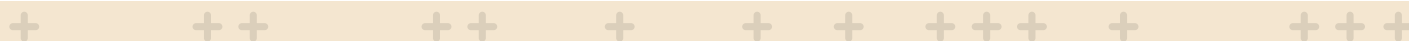


Figure S.4 Key steps of a political economy analysis



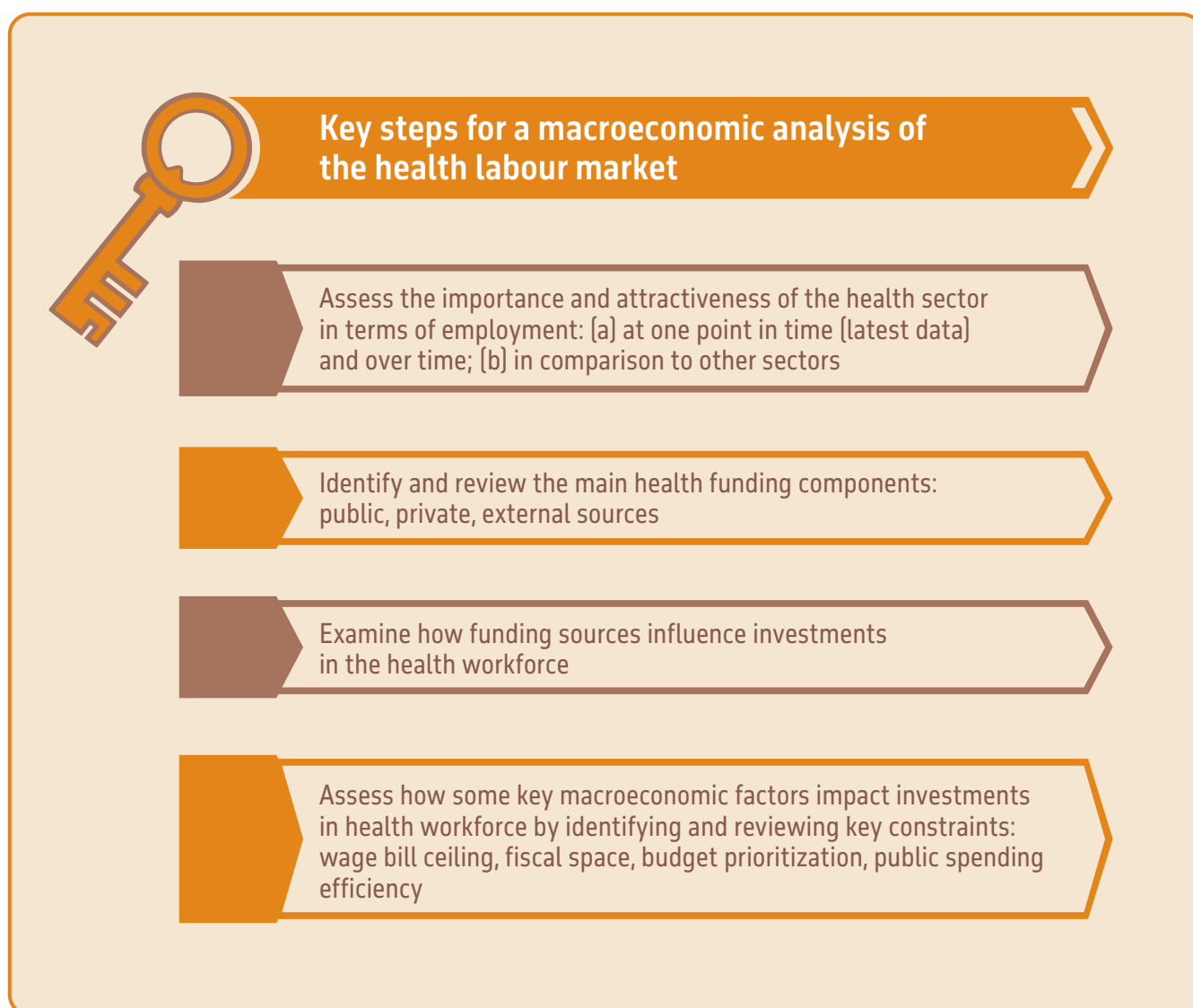
Module 5. Macroeconomic factors shaping the health employment sector

Module 5 provides guidance on how to identify and analyse key macroeconomic factors that affect health workforce development and notably job creation in the health sector. First, the module indicates how to analyse the health sector from an employment perspective and compares it with other sectors. Second, it shows how to examine the composition of health spending patterns by public, private and external sources, and their influence on the funding capacity to increase investment in the health workforce. Third, it provides insight into how



fiscal constraints, budget prioritization and spending efficiency affect investment in the health workforce. Finally, indicators and data sources are presented. **Figure S.5** presents key steps for a macroeconomic analysis of the health labour market.

Figure S.5 Key steps for a macroeconomic analysis of the health labour market

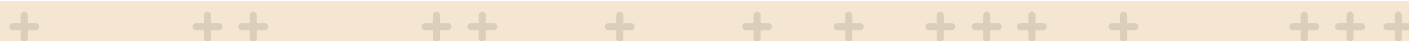
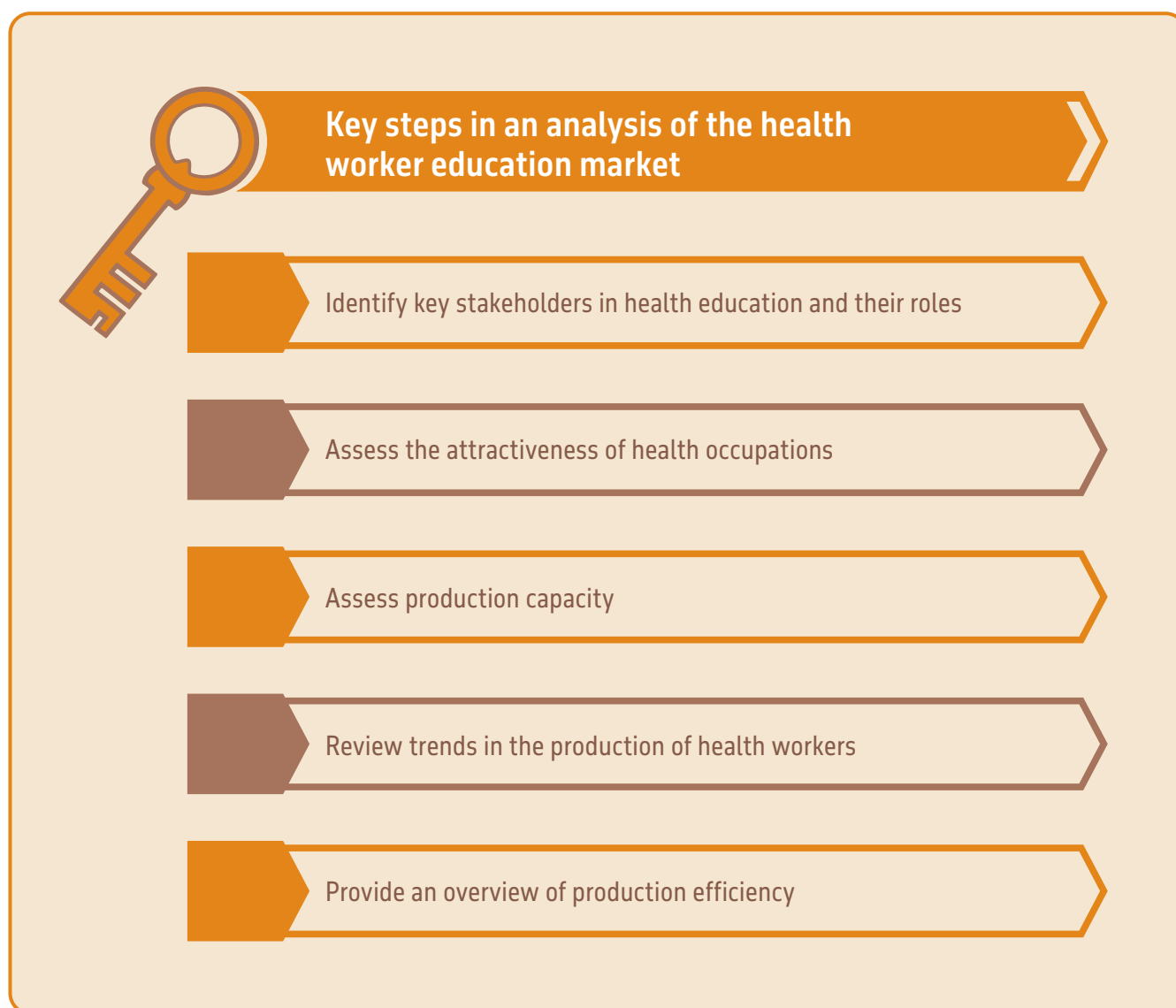




Module 6. Analysis of the health education market

The processes by which candidates for health worker studies are selected, are educated and then enter the workforce are important determinants of the number of workers available and, in turn, of the functioning of a health services system. Module 6 first introduces the importance of analysing the market for health worker education and key concepts. It then highlights some policy challenges and identifies factors that influence health worker education markets and how these, in turn, influence the health labour market. Demand for education is linked to the financial and other returns determined by the conditions in the health labour market, hence the need to measure rates of return to education (RORE). **Figure S.6** presents key steps for an analysis of the health workforce education market.

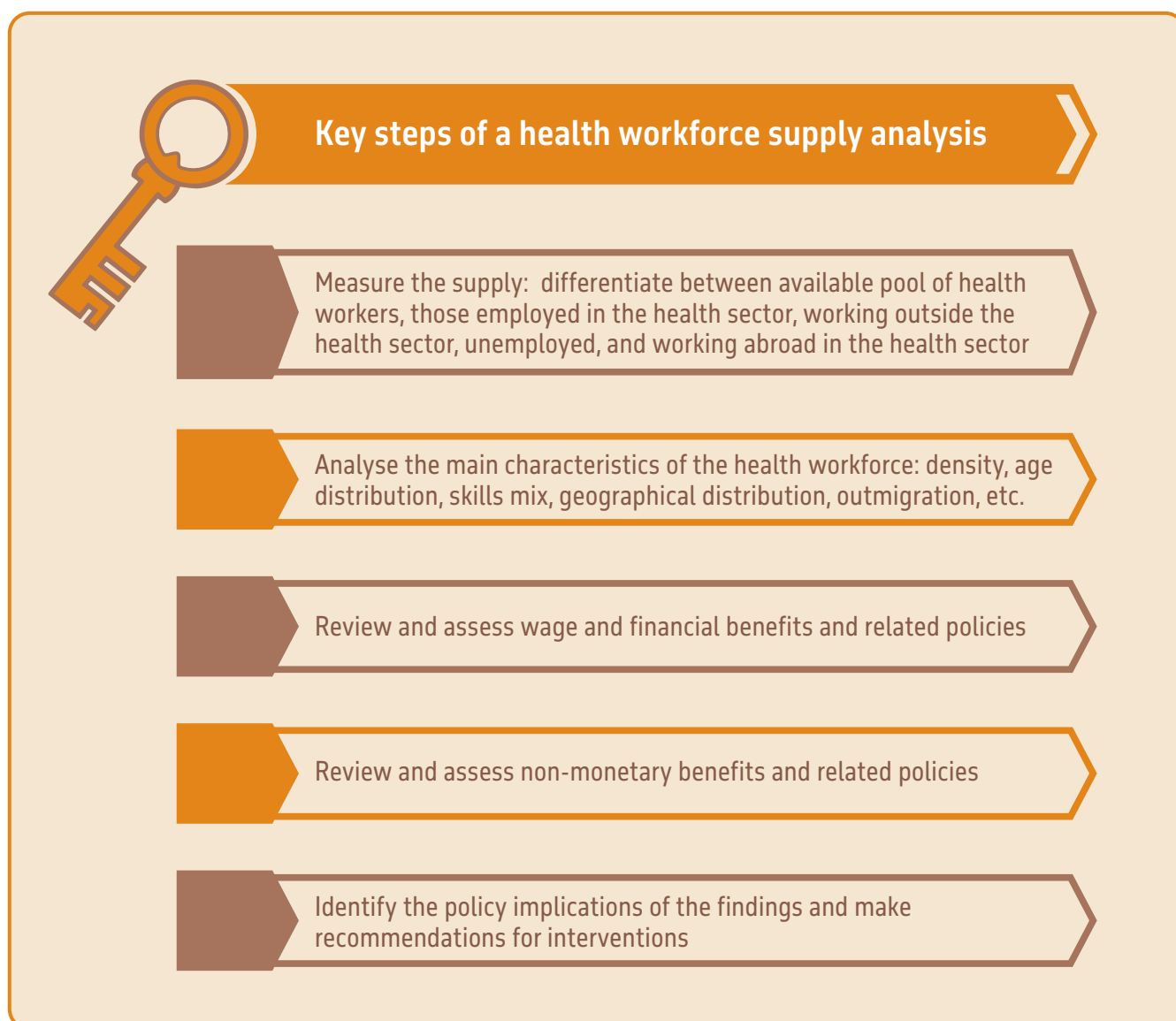
Figure S.6 Key steps for an analysis of the health worker education market



Module 7. Supply of health workers and its determinants

Within the context of an HLMA, it is important to better understand the labour force participation decisions in the health sector that determine the number of qualified individuals willing to work in the health care sector, that is, the supply of health workers. Module 7 introduces the reader to the concept of labour market supply and provides guidance on key steps to undertake an analysis of health workforce supply. The supply of health workers represents the quantity of health workers who are willing to work at prevailing wages in a country's health services institutions, such as hospitals, clinics, pharmacies, diagnostic centres, community worker outposts and training centres. The module also discusses common policy challenges countries face, such as increasing overall supply and the scarcity of qualified health workers in underserved areas. The module presents important tools that can help analyse the supply of health workers and key steps for such an analysis (Figure S.7).

Figure S.7 Key steps for analysing the supply of health labour





Module 8. Demand for health workers and its determinants

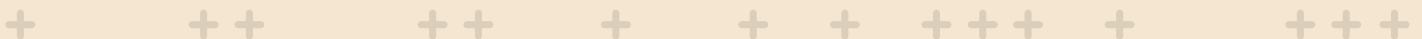
Module 8 introduces the concept of labour market demand and its potential usefulness and limitations in informing and evaluating health workforce policies. Traditionally, labour market analyses and policies have focused more on supply, and demand has received less attention. However, analysing the demand for health workers is crucial to understand the dynamics of the health labour market. The demand for health workers reflects the capacity and willingness to pay (for example of government, the private sector or international actors) for the purchase of health care, which in turn drives the demand for employing health workers in public or private hospitals, health centres, and other parts of the health system, including self-employed health workers.

The demand for health workers does not necessarily coincide with the need for health workers. The need for health workers is a normative function, and can be defined as the number of health workers, usually a threshold of minimum availability of health workers, required to attain the objectives of a health system, such as providing universal health coverage. Needs-based requirements should therefore be distinguished from demand for health workers, which reflects jobs available and affordability, and may not necessarily match the number of workers needed to meet the objectives of the health system.

Figure S.8 presents key steps for analysing the demand for health labour.



Figure S.8 Key steps for analysing the demand for health labour

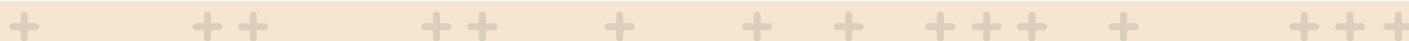
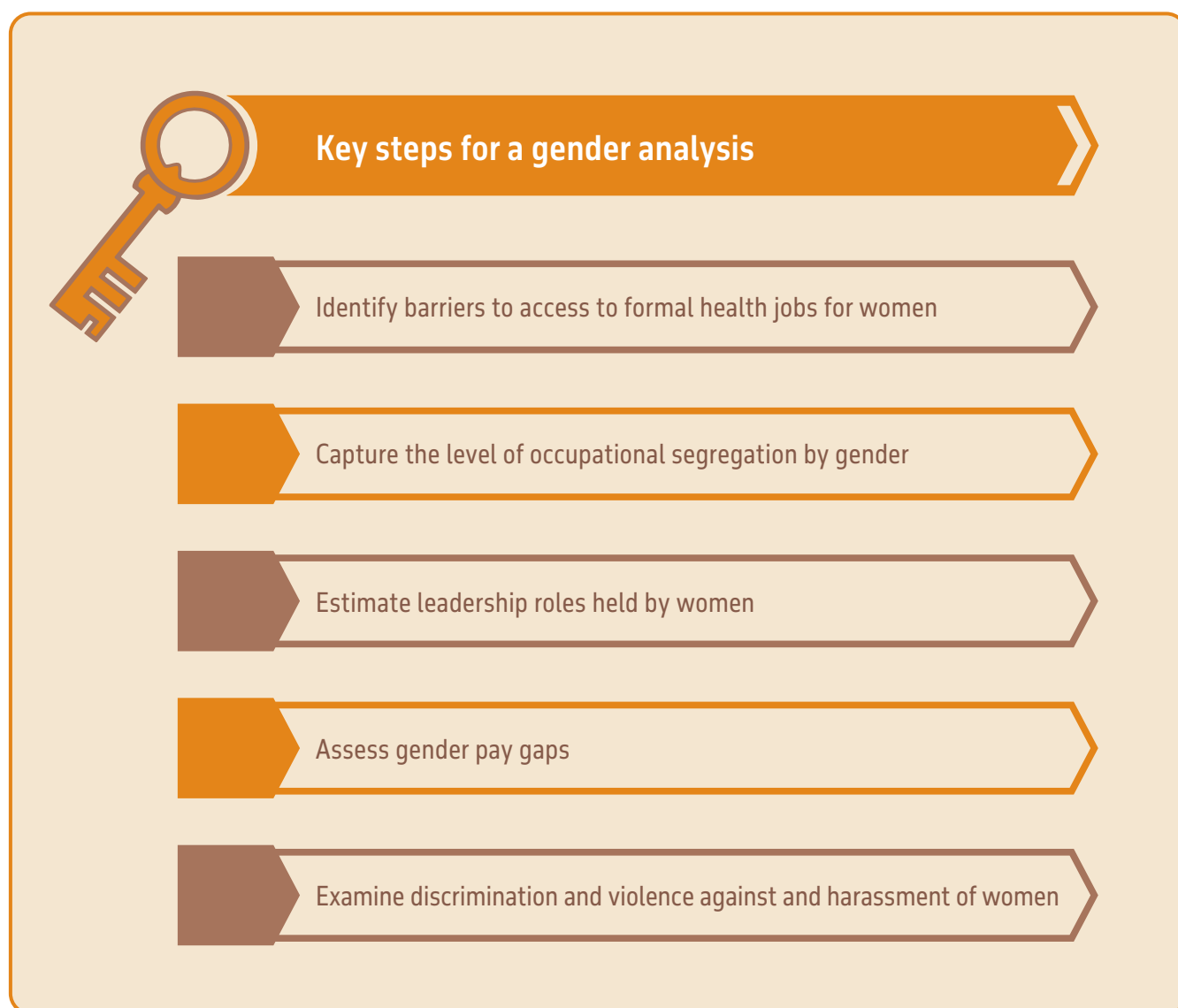




Module 9. Gendered dimensions of the health labour market

Gender gaps are well recognized in the health labour market. Module 9 goes beyond mainstreaming gender in HLMAs and presents methods and approaches for a gender analysis of the health workforce. First, it presents useful definitions for gender-related terms. Second, it presents an approach for identifying inequalities, gaps and disparities. The approach presented organizes gender power relations into five categories: who has what, who does what, time, how values are defined and expressed, and who decides. Finally, the module identifies useful variables and data sources for the analysis. **Figure S.9** presents key steps for a gender analysis.

Figure S.9 Key steps for a gender analysis

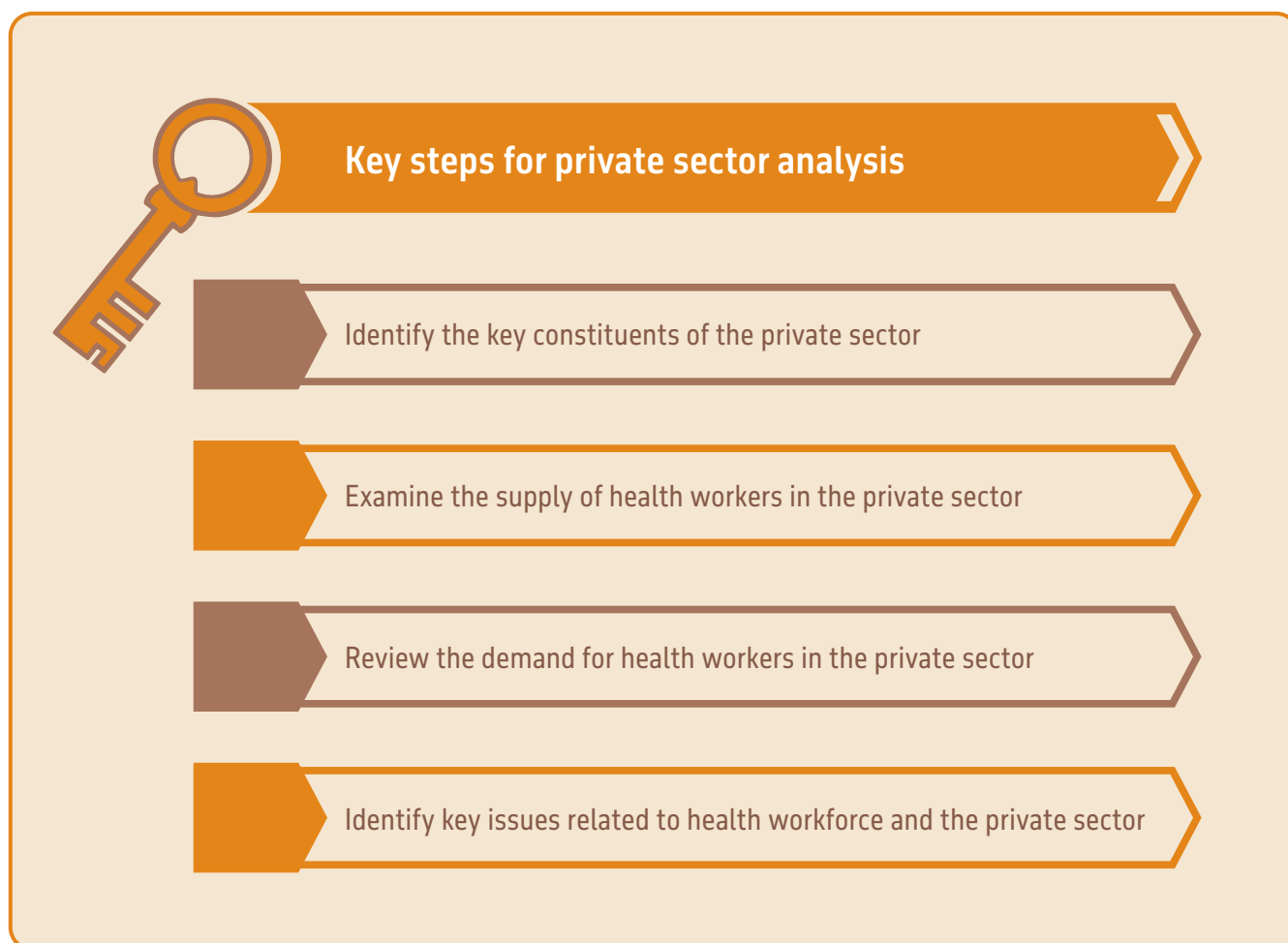


Module 10. Analysing the health workforce in the private sector

In most countries, it is challenging to collect information on the number and profile of workers active in private services. Nonetheless, a comprehensive HLMA must cover all workers providing health services in the country. Module 10 offers guidance on different approaches to gain better information on the private sector workforce. The module starts by stating the need for an analysis of that component of the health labour market, and by defining what “private” means. Then a discussion of supply of and demand for workers in the private sector and their determinants follows. The next section identifies key issues specific to the private health workforce, including the role of regulation in addressing them. The last section is devoted to methodological aspects of the collection of data and information.

Figure S.10 presents key steps for analysing the private sector.

Figure S.10 Key steps for analysing the health workforce in the private sector





Module 11. Health labour market mismatches

The interaction of the supply of and demand for health workers is really at the core of health labour market outcomes. However, traditional approaches to developing human resource strategies in the health sector have mainly relied on supply-side planning and have had a tendency to neglect other important aspects of labour market dynamics, such as changes in demand, employer relations with workers and trade unions, or job preferences of workers. Module 11 reviews different mismatches between supply and demand to better understand the complexities of labour market dynamics in the health sector. The term “mismatch” is used to refer to the various forms of misalignment between labour supply (workers) and labour demand (jobs) that go beyond shortage or surplus of workers.

Figure S.11 presents a schematic description of the interrelationships between labour supply and demand, the influence of the education sector on supply, and the impact of health sector conditions on creating jobs in health care.

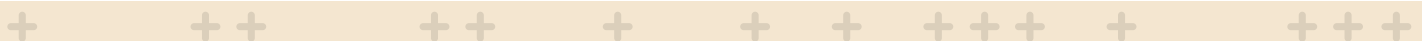
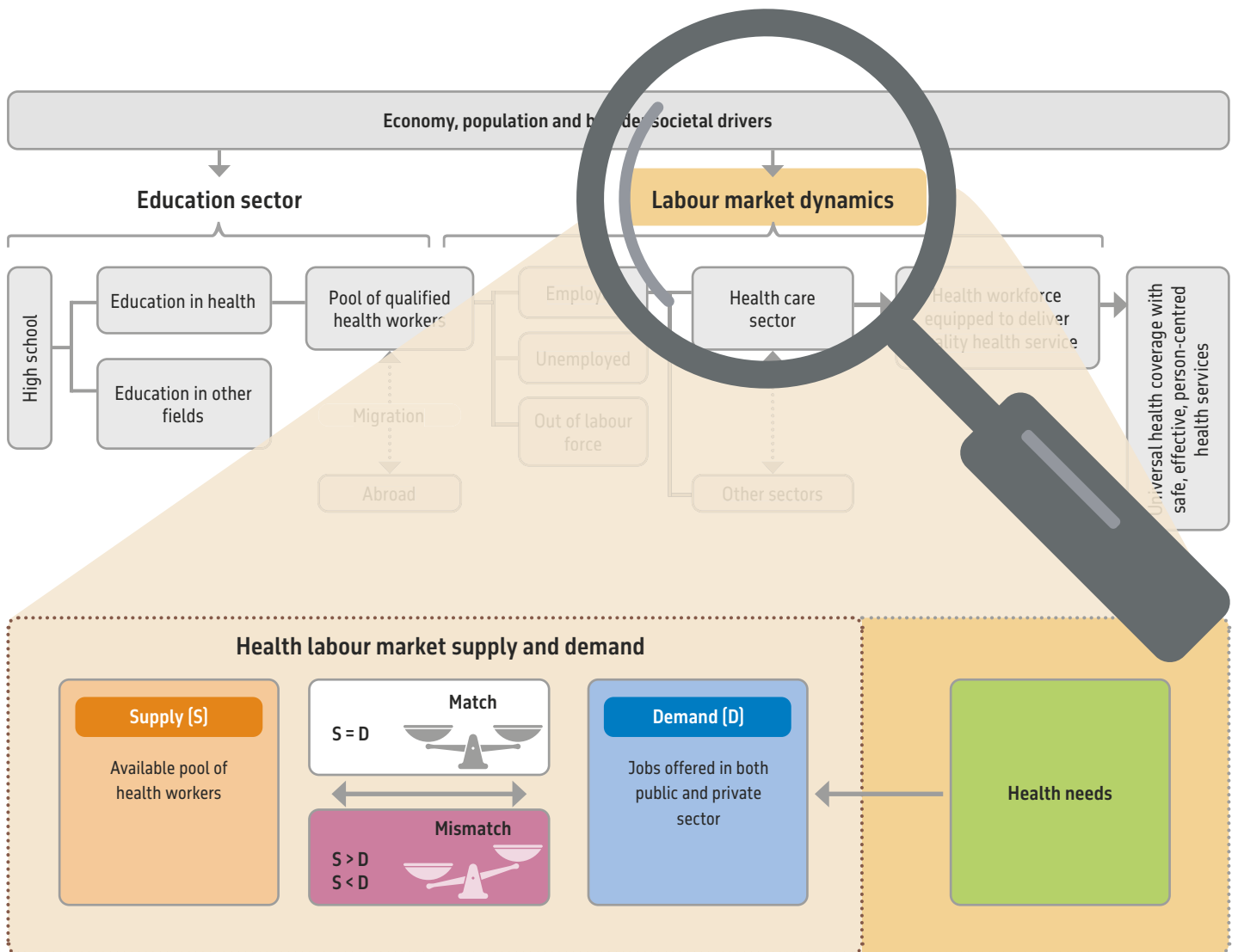


Figure S.11 Analysis of the health labour market through demand and supply





There are three different types of supply and demand mismatches considered in the HLMA guidebook: (a) shortage or labour surplus; (b) skills mismatches related to undereducation or overeducation; and (c) labour discrimination or bias exercised by the employer.

The first section of Module 11 defines the different categories of labour market mismatches and extends the analysis beyond the traditional focus on supply shortage to include skills and discrimination mismatches. The second section characterizes the different labour market structures in the health sector and shows how these affect market outcomes. The third section examines various consequences of labour market mismatches on access to care, health service performance and worker well-being, and gives examples of policy options to mitigate their negative effects. The fourth section reviews methods and data sources for measuring the mismatches. The last section offers guidance on general approaches to collecting and analysing data and engaging key stakeholders to develop feasible strategies for policy design and implementation. **Figure S.12** presents key steps for analysing the demand for and supply of health labour.

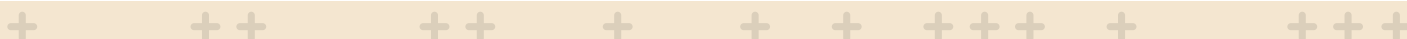
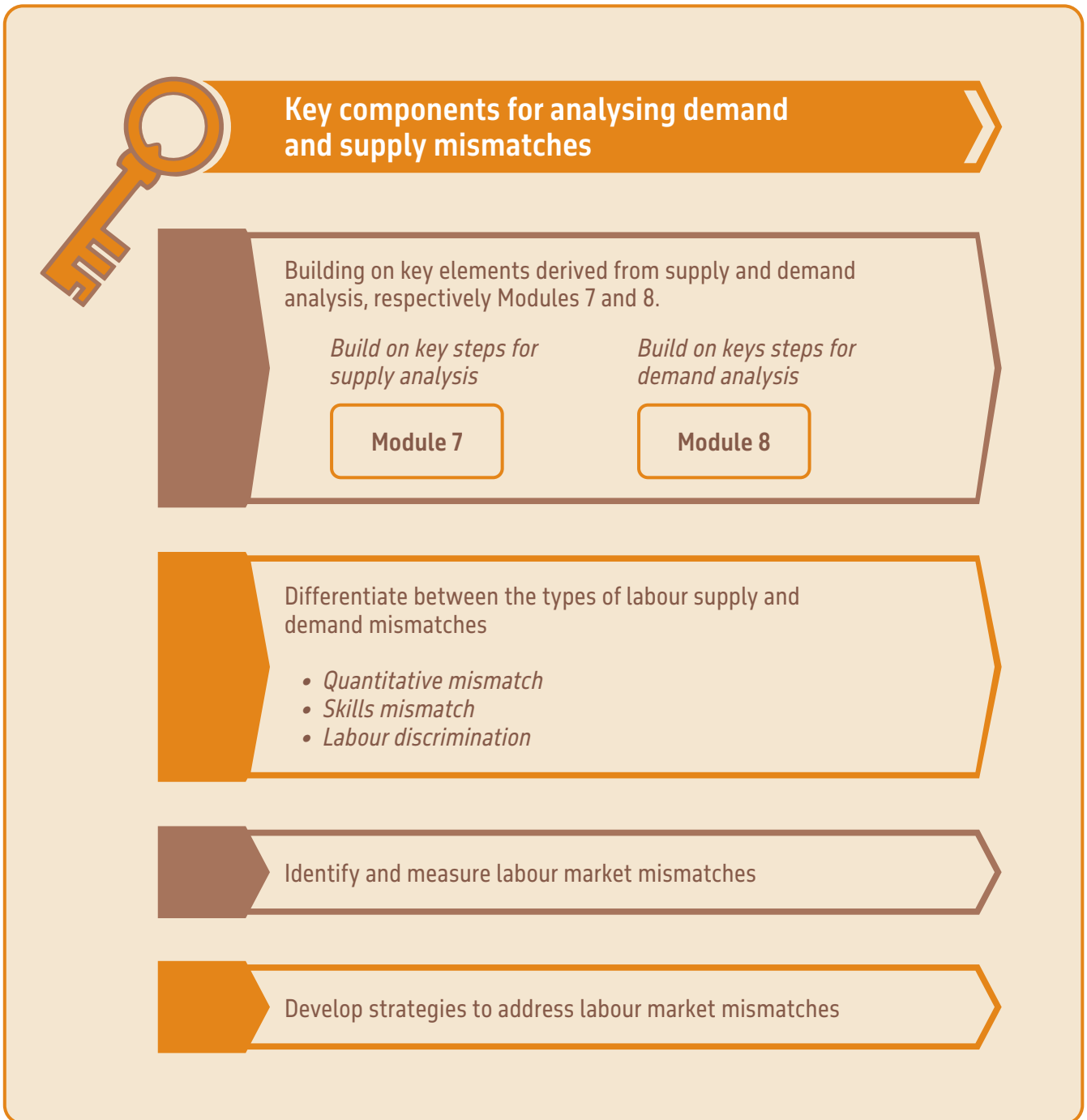


Figure S.12 Key steps to analyse demand and supply mismatches





Module 12. Developing evidence-informed health workforce policy

Ensuring a successful HLMA requires that the barriers between the production of evidence and its use by policy-makers be overcome. Module 12 first presents how the HLMA results can be used to inform policy-making. The module starts with the various definitions of evidence-informed policy-making, their evolution, and their impact in the public health sector. Then, it discusses the findings of systematic reviews of evidence-informed policy-making over the last decade and of barriers and facilitators requiring attention during the policy-making process. Finally, it proposes a health workforce policy-making process framework with recommendations on how to better use evidence drawn from the HLMA.

Figure S.13 shows the various stages of the health workforce policy-making process, which involves many actors and factors that constantly interact to shape policy decisions. The figure summarizes the link between research knowledge transformation and the policy-making process to ensure that evidence informs policy decisions.

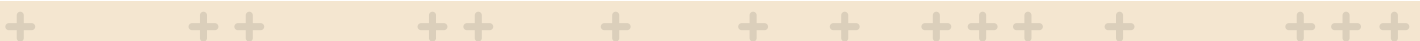


Figure S.13 Evidence-informed health workforce policy-making process

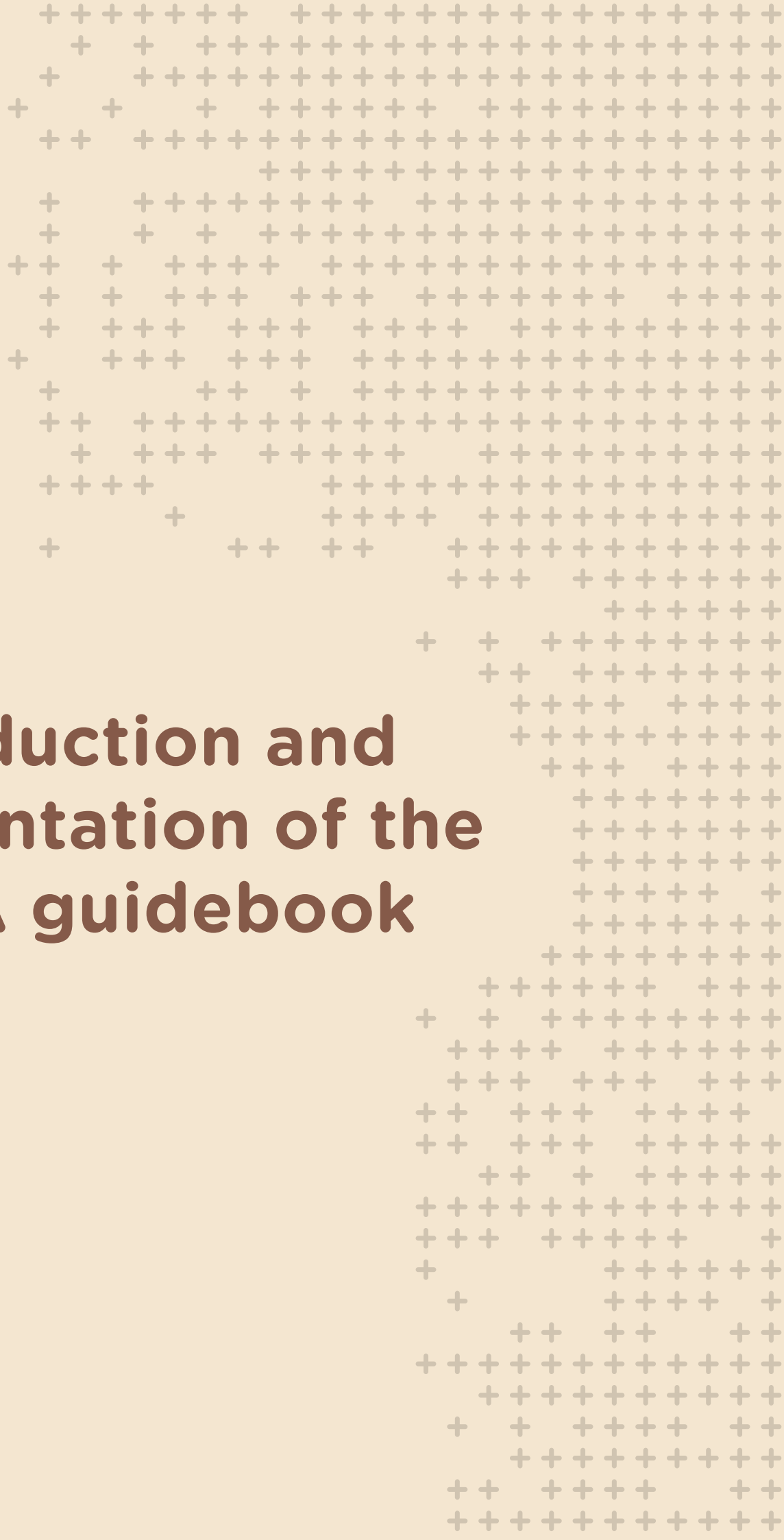


The guidebook has striven to be “as short and straightforward as possible but also as long and detailed as necessary”. It provides key theoretical elements as necessary while focusing more on presenting and discussing the practical steps for undertaking a health labour market analysis. In its present version, the guidebook covers the fundamentals of such an analysis; it will evolve, and some topics that are not discussed in detail will be developed in future editions.

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Introduction and presentation of the HLMA guidebook





Background: growing global health workforce challenges

The health workforce is at the centre of every health system. The knowledge, skills and motivation of health workers play a crucial role in delivering health services to those in need, which contributes to improving health outcomes and the well-being of the population. Yet, the health workforce often turns out to be the weakest link of the health system.

Many countries are grappling with major health workforce challenges, including critical shortages in the supply, an inadequate mix of skills, an inequitable distribution, and gaps in the competencies, motivation, and performance of health workers [1]. These challenges, combined with projected shortages of health workers by 2030, primarily in low- and lower-middle-income countries [2, 3], impede progress towards the achievement of universal health coverage, global health security and the health-related Sustainable Development Goals (SDGs). In that context, building a fit-for-purpose and fit-to-practise health workforce is critical.

Future health workers, and those currently delivering services, need to have the competencies required, and be enabled, to provide services that meet current and changing population health needs. Within that context, decisions will need to be made about which health workforce structure can best deliver services across the country, including in underserved areas, to achieve universal health coverage.

What is the health labour market? And what is the usefulness of health labour market analysis (HLMA)?

A labour market is the mechanism that facilitates the fulfilment of a demand for labour services by individuals who wish to or are able to supply them. The dynamic between the number and kind of jobs offered and the number and kind of health workers willing to accept a funded job is central to determining the level of employment and the configuration of the labour market, and its outcomes.

Deficiencies in the availability, distribution and quality of health workers remain a persistent obstacle in achieving universal health coverage. Reforms and investments in the health sector and in models of care delivery can be made more effective if they are based on evidence-informed strategies to ensure a responsive and productive health labour market.

For instance, the usual response to address shortages in the workforce is to scale up production. When shortages are fuelled by international emigration, or by a preference for urban postings, such an approach will not be a solution, as it ignores important factors related to the dynamics of the labour market, including the preferences of health workers and employers. Labour market conditions, such as low wages, will influence employment outcomes.



Analysing the labour market is essential to achieve a better understanding of the forces that drive health worker shortages and surpluses, skills mix, geographical distribution and level of performance, and to develop effective policies to address these issues [4]. Understanding the labour market is especially important in the context of a health crisis such as the COVID-19 pandemic.

An HLMA is an analysis of factors affecting the demand for and supply of health workers, thereby promoting intersectoral dialogue and supporting informed decision-making and investment. **Box 1** presents an illustration.

Box 1. The usefulness of an HLMA: the example of Niger

Niger is the first country in the west Africa subregion to take up the recommendations of the United Nations High-Level Commission on Health Employment and Economic Growth [5]. The resulting National Action Plan for Investment in Health and Social Sector Employment and Growth in Economic Health 2018–2021 was endorsed by the government and adopted through a presidential decree.

The National Action Plan was informed by WHO technical assistance in conducting an HLMA. The analysis provided an evidence-based assessment to inform a multisectoral policy dialogue. Evidence of inefficiencies in the health labour market were identified, notably that only 45% of health graduates over the period 2010–2014 found jobs in the health sector, and approximately 15 000 (including physicians) were unemployed or occupied precarious jobs.

In this context, the government launched the implementation of the Rural Pipeline Programme in three rural regions: Diffa, Tahoua and Tillabéri. The programme is based on a community development approach covering health, education and economic activities, with the aim of accelerating rural development through the creation of jobs for women and youths.

The programme has already led to a significant increase in and better distribution of the health workforce. The density of health personnel per 10 000 population has subsequently doubled in the Diffa region, tripled in the Tahoua region, and witnessed an even higher increase in the Tillabéri region.

Source: World Health Organization [6].

A well conducted HLMA across all sectors of the health labour market (public and private) provides reliable information on the main dimensions of the performance of the health workforce, for example its availability, accessibility and acceptability. An HLMA can raise the awareness of policy-makers and decision-makers of how and why their country's health labour market changes, help them answer important questions in relation to some of its dysfunctions and challenges (**Table 1**), and assist them in formulating appropriate responses.

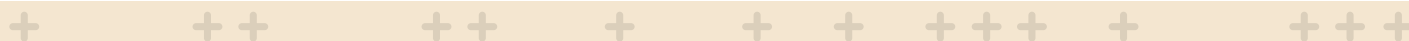


Table 1. Examples of questions relating to health labour market challenges

Domain	Questions
Availability	<p>Why is there a shortage of some cadres in certain fields (such as primary care, mental health and geriatrics) and a surplus in others (such as paediatrics and general surgery)?</p> <p>How many health workers does the country need to produce? How many can it absorb? How many per cadre?</p> <p>How can we attract, deploy and retain young people in occupations such as nursing or family medicine?</p> <p>Why do some health workers remain unemployed?</p> <p>What is the role of migration on the availability of health workers?</p>
Accessibility	<p>What factors cause imbalances in the geographical distribution of different cadres within a country?</p> <p>How can we eliminate gaps in access to primary care workers (or in access to long-term care, palliative care services or community-based services)?</p> <p>How can we encourage physicians – and other health workers – to work in under-served areas?</p>
Acceptability	<p>How can the education of health workers be transformed so that it equips them with the competencies (such as communication, cultural sensitivity, empathy and respect for ethics) that foster demand for and utilization of their services?</p>
Quality	<p>How can the competencies of health professionals and lay workers be improved to levels that increase utilization of essential health care services?</p> <p>How can patient-centred care be delivered? How to standardize curricula for education of health workers globally, so that all have a minimally accepted level of skills and competencies?</p>
Efficiency	<p>How can an efficient skills mix of health workers be achieved?</p> <p>Is the financing of the health workforce sustainable?</p>

Why this guidebook? Objectives of the guidebook

The World Health Organization (WHO) encourages countries to undertake an HLMA to identify and address the particular challenges facing the health workforce and identify strategic areas for transformative investment. This guidebook responds to a growing need for a pragmatic approach to HLMA that can be implemented by any country. It meets the increasing demand for a streamlined and harmonized approach to conducting labour market analyses in the health sector.



The central purpose of this guidebook is to facilitate the implementation of standardized HLMA approaches in supporting countries to answer key policy questions relating to human resources for health. The tools proposed in this guidebook are intended to assist in the generation of evidence to address health workforce policy questions more effectively.

Although it is important to have standardized analytical approaches, an HLMA is country and context specific. Therefore, countries will need to prioritize their main issues and focus on areas where they can achieve the best outcomes.

This Guidebook supports the implementation of the WHO Global Strategy on Human Resources for Health: Workforce 2030 [2] and is in line with the recommendations and action plan of the High-Level Commission on Health Employment and Economic Growth [5].

Who is the audience for this guidebook?

This HLMA guidebook is a training resource primarily aimed at analysts, planners, researchers and trainers, but its contents are of value to all relevant stakeholders, including public and private sector employers, leaders of professional associations, education and training institutions, labour unions, bilateral and multilateral development partners, international organizations, and civil society.

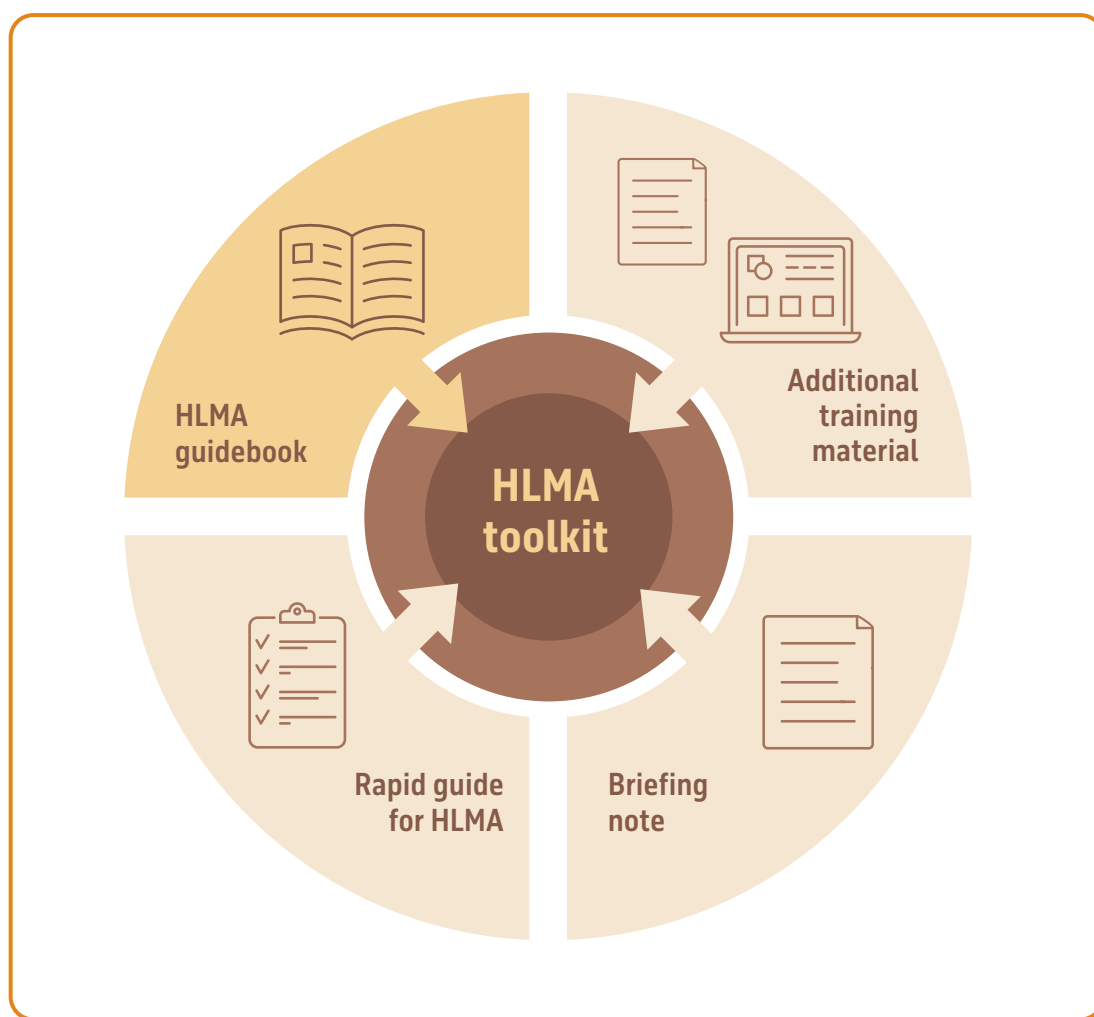
For non-technicians, a briefing note summarizing the benefits of conducting an HLMA and describing the process to do so is available. This document will help in ensuring that the numerous stakeholders share a common language when they discuss health labour market policies and interventions.

The guidebook as part of an HLMA toolkit

The guidebook is part of an HLMA toolkit, as depicted in Figure 1. This toolkit, in addition to the guidebook, includes additional training material, a rapid guide for HLMA (which is a shorter and more pragmatic version of the guidebook aimed at people interested in key elements for undertaking a rapid HLMA), and the briefing note to inform decision-makers about HLMA.



Figure 1. HLMA toolkit components



Structure of the guidebook

The guidebook consists of 12 modules divided into four sections logically sequenced:

- Conceptual and practical foundation of a health labour market analysis
- Analysing core health labour market elements
- Analysing overarching health labour market issues
- From health labour market analysis to policy

Table 2 lists all the modules of the HLMA guidebook and what you will learn from each one.



Table 2. Modules of the HLMA guidebook

Module	You will ...
Section 1. Conceptual and practical foundation of a health labour market analysis	
Module 1. Main concepts and analytical framework	... become familiar with the basic concepts used in a health labour market analysis, and with an analytical framework that guides it
Module 2. Practical sequence for the process of conducting a health labour market analysis	... get to know a practical step-by-step sequence for conducting a health labour market analysis
Module 3. Data sources and collection tools: National Health Workforce Accounts	... identify relevant data sources and collection tools, including National Health Workforce Accounts
Section 2. Analysing core health labour market elements	
Module 4. Political economy analysis	... learn how to analyse the political environment that influences the health labour market
Module 5. Macroeconomic factors shaping the health employment sector	... learn how to analyse key macroeconomic factors that influence the health labour and health education markets
Module 6. Analysis of the health education market	... understand the importance of analysing the market of health professional education, the factors that influence it and how to address them
Module 7. Supply of health workers and its determinants	... learn how to measure supply, and understand the influence of both wages and non-wage job characteristics
Module 8. Demand for health workers and its determinants	... be able to define labour market demand and identify the factors that influence its evolution
Section 3. Analysing overarching health labour market issues	
Module 9. Gendered dimensions of the health labour market	... identify important gender issues and frameworks, data, methods and approaches to integrate gender in a health labour market analysis
Module 10. Analysing the health workforce in the private sector	... be presented with different approaches to gain better information on the private sector workforce
Module 11. Health labour market mismatches	... review the different aspects of labour market mismatches and methods and data sources for measuring them
Section 4. From health labour market analysis to policy	
Module 12. Developing evidence-informed health workforce policy	... become aware of the various definitions of evidence-informed policy-making and familiarize yourself with recommendations on how to better use evidence drawn from a health labour market analysis



The modules are generally structured as follows:

- a short discussion presenting the topic covered by the module in the context of the health labour market framework;
- a brief theoretical section, when relevant;
- a core section presenting and discussing the key steps for the analysis;
- a section on data sources and indicators.

References: Introduction

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2. Global Strategy on Human Resources for Health: Workforce 2030. Geneva: World Health Organization; 2016 (<https://www.who.int/hrh/resources/globstrathrh-2030/en/>, accessed 2 November 2020).
3. Liu JX, Goryakin Y, Maeda A, Bruckner T, Scheffler R. Global health workforce labor market projections for 2030. *Human Resources for Health*. 2017;15:11. doi:10.1186/s12960-017-0187-2.
4. McPake B, Maeda A, Araújo EC, Lemiere C, El Maghraby A, Cometto G. Why do health labour market forces matter? *Bulletin of the World Health Organization*. 2013;91:841–6. doi:10.2471/BLT.13.118794.
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6. Niger case study. Geneva: World Health Organization; 2020 (unpublished report).





Section 1

Conceptual and practical foundation of a health labour market analysis

Module 1 introduces the basic concepts used in HLMA and presents an analytical framework that can guide the analysis.

Module 2 outlines the process of conducting an HLMA, and proposes a step-by-step sequence for the process.

Module 3 discusses data sources and collection tools, and the National Health Workforce Accounts.



Module 1



Main concepts and analytical framework

Summary

- The module presents key concepts and an analytical health labour market framework.
- A labour market can be defined as the mechanism that facilitates the fulfilment of a demand for labour services by those who wish to or are able to supply labour services.
- A labour market can be characterized according to different criteria: geographical (local, national or international); occupational (by occupation group or level of specialization); or sectoral (for example, the health sector).
- The health labour market framework provides a comprehensive picture of health labour market dynamics.
- The link between the health labour market framework and each module of the guidebook is described and explained.
- Based on the health labour market framework, policy questions in the areas of production, inflow and outflow, maldistribution and inefficiencies, and regulation can be answered, contributing to the development of evidence-based policies.

1.1 Defining a labour market

A labour market can be defined as the mechanism that facilitates the fulfilment of a demand for labour services by those who wish to or are able to supply labour services. The dynamic between the number and kind of jobs offered on the market and the number and kind of health workers available and willing to accept a job offered is central to determining the level of employment and the configuration of the labour market, and to its outcomes.

A labour market can be characterized according to different criteria: for example, geographical (local, national or international), occupational (by occupation title or category, or level of specialization), sectoral (private, public, faith based, formal or informal), or according to gender dimensions. In the labour market, remuneration, conditions of service and the working environment play a key role in determining workers' decisions with regard to the time they

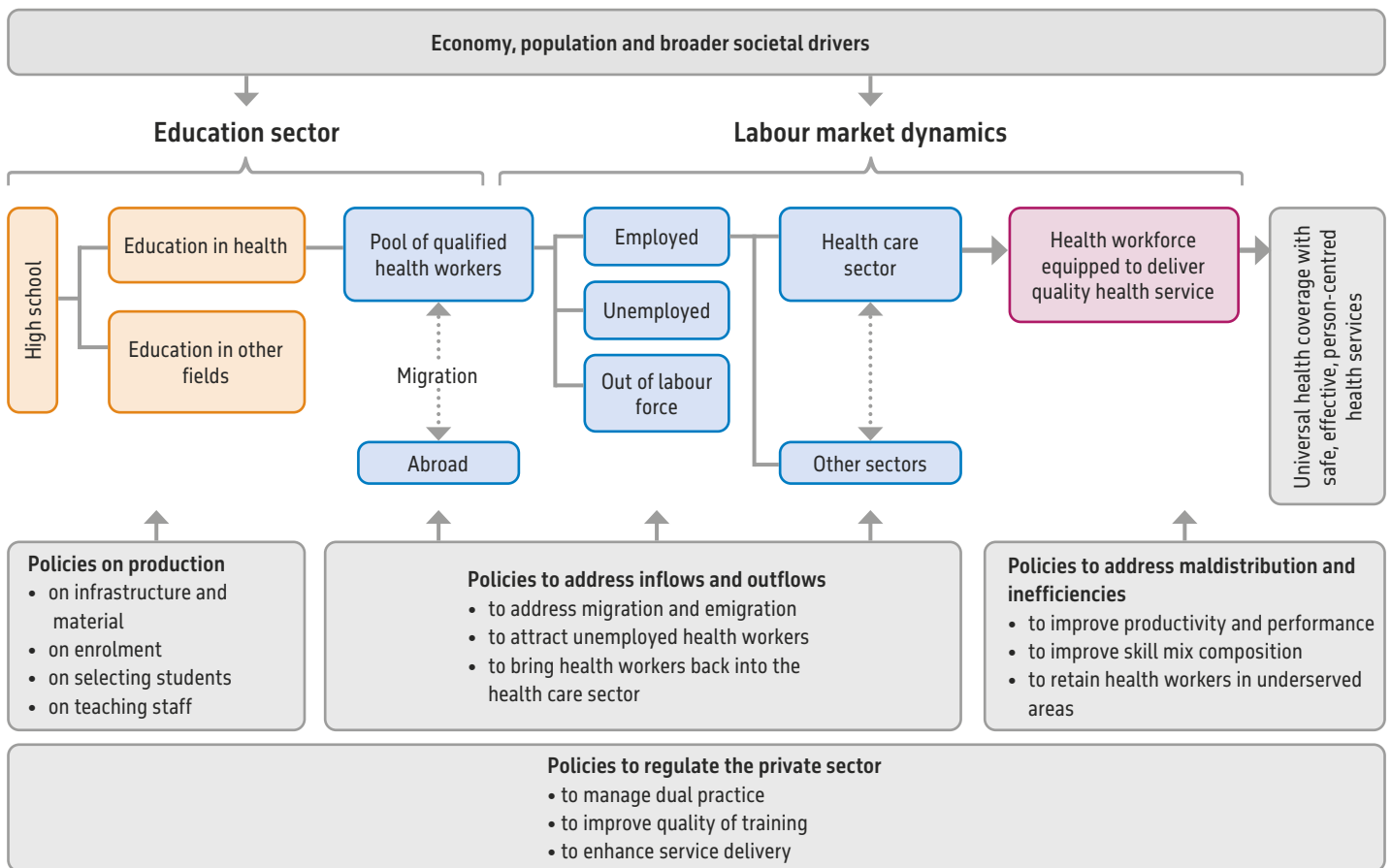
want to dedicate to work, whether they wish to work in the public or private sector or both, or their preference for an urban or rural practice location. There is no single homogeneous labour market, but rather many labour markets for each different type of labour that often overlap, leading to competition between different labour markets.

1.2 Health labour market framework

A conceptual representation of the health labour market is presented in **Figure 1.1**. This framework is a key element of the WHO Global Strategy on Human Resources for Health: Workforce 2030 [1]. This health labour market framework enables a better understanding of health workforce flows and also suggests potential policy approaches through which these can be altered to move towards universal health coverage [2, 3].

This framework provides a basis for a health labour market analysis (HLMA). Modules relating to the framework are described below.

Figure 1.1 Health labour market framework for universal health coverage



Source: Sousa et al. [4].



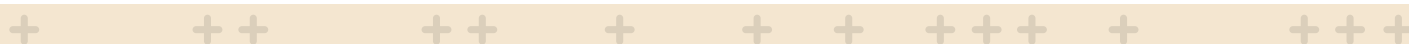
The framework can be divided into two parts, one related to the education sector, and one more specifically to the health labour market. Both are influenced by the economy, political environment, population demographics and other broader societal factors.

Module 4 of the guidebook, on political economy analysis, enables an understanding of the specificities of a national health labour market through an analysis that looks at the relationships between the various actors and their positions on specific issues, and tries to identify which incentives would bring them to collaborate or at least not to oppose health labour market policy. Module 5, on macroeconomic factors shaping the health employment sector, identifies key macroeconomic factors influencing the health labour market. For example, an economic crisis may lead to budgetary constraints affecting employment in the health sector.

Module 6 introduces the importance of analysing the markets for health education and identifies factors that influence them and how these, in turn, influence the health labour market. Decisions by education institutions on how much to invest in health training programmes, and by individuals on whether to pursue an education in health care or in some other field, greatly influence graduation levels *[5]*.

In addition to the production of health workers through the education sector, foreign-trained workers can also join the national health labour market. This may be a gain for the recipient country and for the individual migrant, but a cost for the source country. The pool of qualified health workers available for employment in the health sector is therefore a function of the country's training capacity and of immigration and emigration of health workers. The pool can include those employed in the health sector or in another sector (by choice or by lack of opportunities in the health labour market), those willing to work but unemployed, and those out of the labour force (permanently or temporarily). It is important to understand labour force participation decisions in the health sector, as these determine the number of qualified individuals willing to work in the health care sector, that is, the supply of health workers. Module 7, on the supply of health workers and its determinants, presents the concept of supply and the dynamics that determine the willingness of health workers to participate in the health labour market.

While the number of workers willing to work – the supply of health workers – is a key element of the health labour market, it is also very important to account for the actual number and types of jobs in the health sector that are offered on the market, that is, the demand for health workers. The demand corresponds to the number of health workers that a health system can support in terms of positions or economic demand for services, which is influenced by affordability. In other words, demand reflects the capacity and willingness to pay of the purchasers of health care (for example, the government or private sector firms), which in turn drives the demand for health workers in public or private hospitals, public health centres, and other parts of the



health system, including self-employed health workers [6]. The demand for health workers is therefore a derived demand for health services. It is influenced by economic factors, such as household income, the fiscal capacity of the government to support the health system and employ workers, the demographic and epidemiological conditions of the population, and the level of health services coverage [6]. Module 8 develops the concept of demand for health workers and its determinants.

Figure 1.1 depicts different worker flows in the labour market, such as unemployment, migration, and employment in the health sector or in other sectors. Those flows illustrate the dynamics between the demand for and supply of health workers, which is central to health labour market outcomes.

Labour markets are said to clear when the supply of labour matches demand. In other words, at wage equilibrium, the number of health workers willing to work will match the number of jobs offered. When labour market equilibrium occurs, neither a labour excess nor a labour deficit is observed. When markets do not clear, this could be temporary or the result of a long-term structural mismatch between the demand for and supply of health workers. Markets, especially in health, rarely clear; they show inefficiencies or dysfunctions that result in mismatches between the supply of and demand for health worker jobs, which are referred to as market failures.

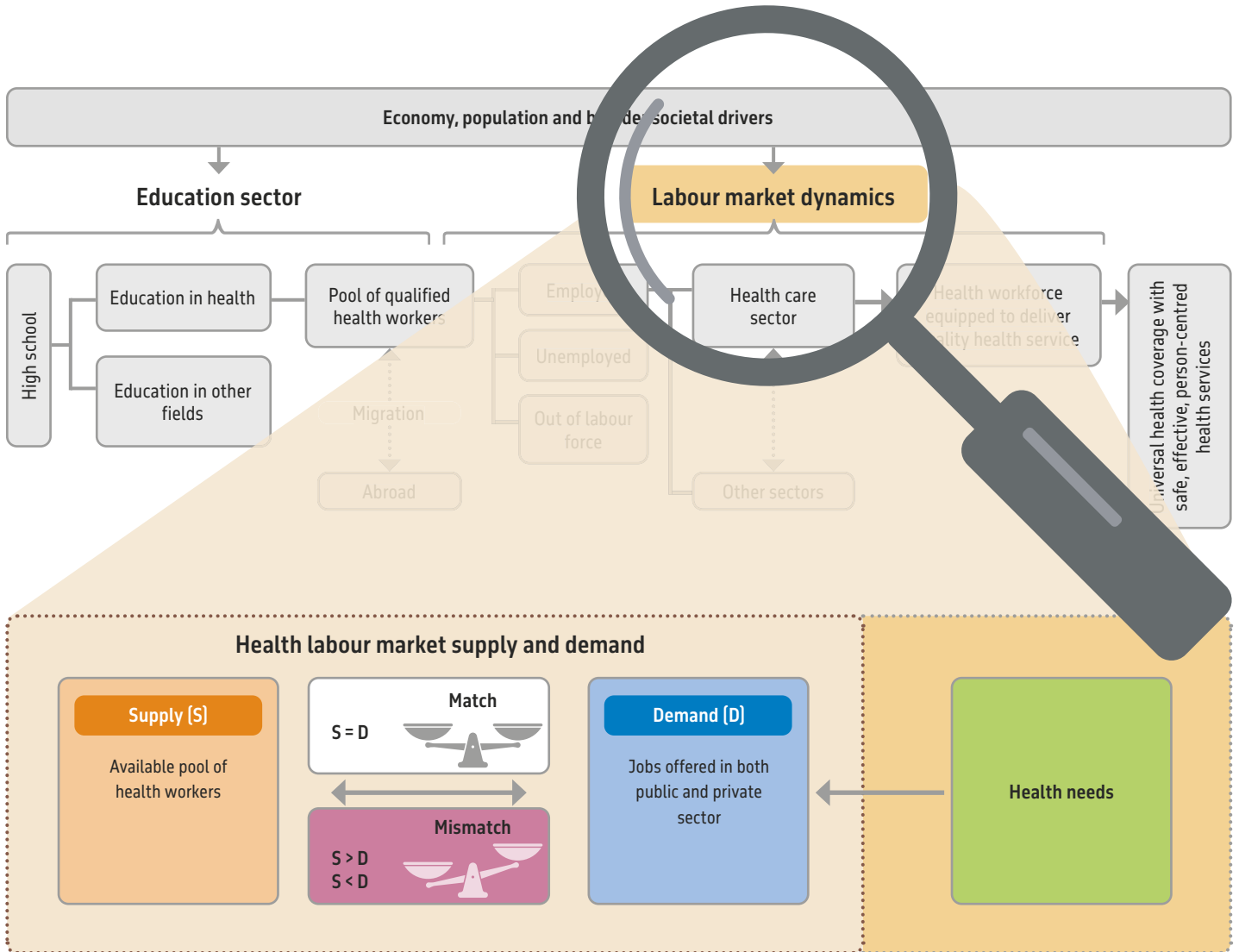
As illustrated in **Figure 1.2**, the result may be a labour surplus, resulting in unemployment or underemployment, or a quantitative or qualitative labour shortage [7]. Those mismatches suggest a role for government intervention to mitigate market failures and minimize the gap between the demand for and supply of health workers.

Understanding overarching health labour market issues, for example gender and the private sector, is also important, as such cross-cutting issues affect health labour market outcomes. Gender gaps are well recognized in the health labour market. Module 9, on gendered dimensions of the health labour market, provides a gender perspective for HLMA and presents approaches to a gender analysis of the health workforce, facilitating identification of areas of policy intervention addressing the detrimental impacts of gender inequality on a country's health system.

The health workers employed by private hospitals and clinics, nongovernmental organizations (NGOs), and faith-based organizations, or who are self-employed, play an important role in many countries. In the education sector, the number of private medical and nursing schools has increased, particularly in low- and lower-middle-income countries. Module 10, on analysing the health workforce in the private sector, offers guidance on how to study the private sector in an HLMA.

To illustrate the overall dynamics of demand for and supply of health workers, an adaptation of **Figure 1.1** is presented in **Figure 1.2** and is further developed in Module 11, on health labour market mismatches. The relationship between needs, demand and supply is summarized in **Box 1.1**.

Figure 1.2 The dynamics between the demand for and supply of health workers



Box 1.1 The concept of the need for health workers and relationship between supply, demand and need

The "demand for health workers" does not necessarily coincide with the "need for health workers". The need for health workers is a normative notion, and can be defined as the number of health workers, usually according to a threshold of minimum availability of health workers, required to attain the objectives of a health system, such as providing universal health coverage. Needs-based requirements should therefore be distinguished from demand for health workers, which reflects jobs available and affordability, and may not necessarily match the number of workers needed to meet the objective of the health system. Nonetheless, undertaking an HLMA and implementing its recommendations is an important element contributing to the achievement of national health policies.

Need = Demand = Supply	➔ ideal world!
Need > Demand	➔ deficit (unmet needs ¹)
Demand > Supply	➔ shortage (e.g. unfilled vacancies)
Demand < Supply	➔ surplus (e.g. unemployment/underemployment)

1.3 Health workforce policies

The health labour market framework helps to develop policy questions in the following four main areas: production; inflows and outflows; maldistribution and inefficiencies; and regulation issues, as highlighted in [Figure 1.1](#).

Policies on production

- Policy questions based on the education and training of health workers can be simple to formulate, but more difficult to answer. Examples include: What is the education and training capacity (infrastructure, teaching staff, cost) and its output (student selection, enrolment, attrition, graduates per cadre)? Is this production enough to meet demand or need? Are training facilities producing graduates with the right competencies, namely knowledge, skills and attitudes relevant to the population health needs and demands? What can educational institutions do to match worker competencies to demands and needs, and ultimately improve skills mix? How can the quality of education be regulated, in both public and private institutions?

Policies to address inflows and outflows

- Relevant policy questions include: What is the ability of the current labour market to employ the available health workers? Why do some remain unemployed? Why do some leave the health labour market to work in other sectors or leave the country? Which

¹ Unmet need is also often seen as a gap between the workforce required to deliver the perceived agreed package of health care and the actual workforce.



policies can help retain them in the places they are most needed? Do we need to increase the inflow of health workers into the country and, if so, how can this be incentivized and regulated?

Policies to address maldistribution and inefficiencies

- The geographical distribution and efficiency of health workers are a challenge everywhere. Policy questions include: What can be done to distribute health workers more equitably for achieving universal health coverage? How can the productivity and performance of health workers be improved?

Policies addressing regulation issues

- Policy questions include: How can the quality of practice be better regulated? How can dual practice be regulated?

While answering policy questions based on an HLMA is critical, often there are gaps between the production of evidence and its use by policy-makers. To address this challenge, Module 12, on developing evidence-informed health workforce policy, discusses how policy-makers can benefit from labour market analysis and other evidence to improve health workforce policy development.



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Module 2



Practical sequence for the process of conducting a health labour market analysis

Summary

- Health labour market analysis (HLMA) is a bottom-up, country-led process in terms of ownership, engagement and collaboration.
- This module proposes a process for conducting an HLMA, though it should be borne in mind that all HLMAs should be done in a manner that reflects the unique context and objectives of each study.
- HLMA should be a response to the request of policy-makers or other stakeholders who need to better understand the dynamics of their country's health labour market.
- At the stage of the request, it is important to identify the objectives of the stakeholders and to agree on the approach and expected outcomes.
- The module presents some key steps in ensuring a successful HLMA, including setting the stage, engaging policy-makers and key stakeholders, forming a technical expert group, introducing the concepts of HLMA, selecting indicators and methods to be used, collecting data, completing the analysis, discussing findings, and using the HLMA to inform policy.
- The process is presented as linear and sequential, but in reality it is more of an iterative process, as analysts often need to go back to a previous step to make adjustments in light of new data or information, or a change in the context.

2.1 Introduction

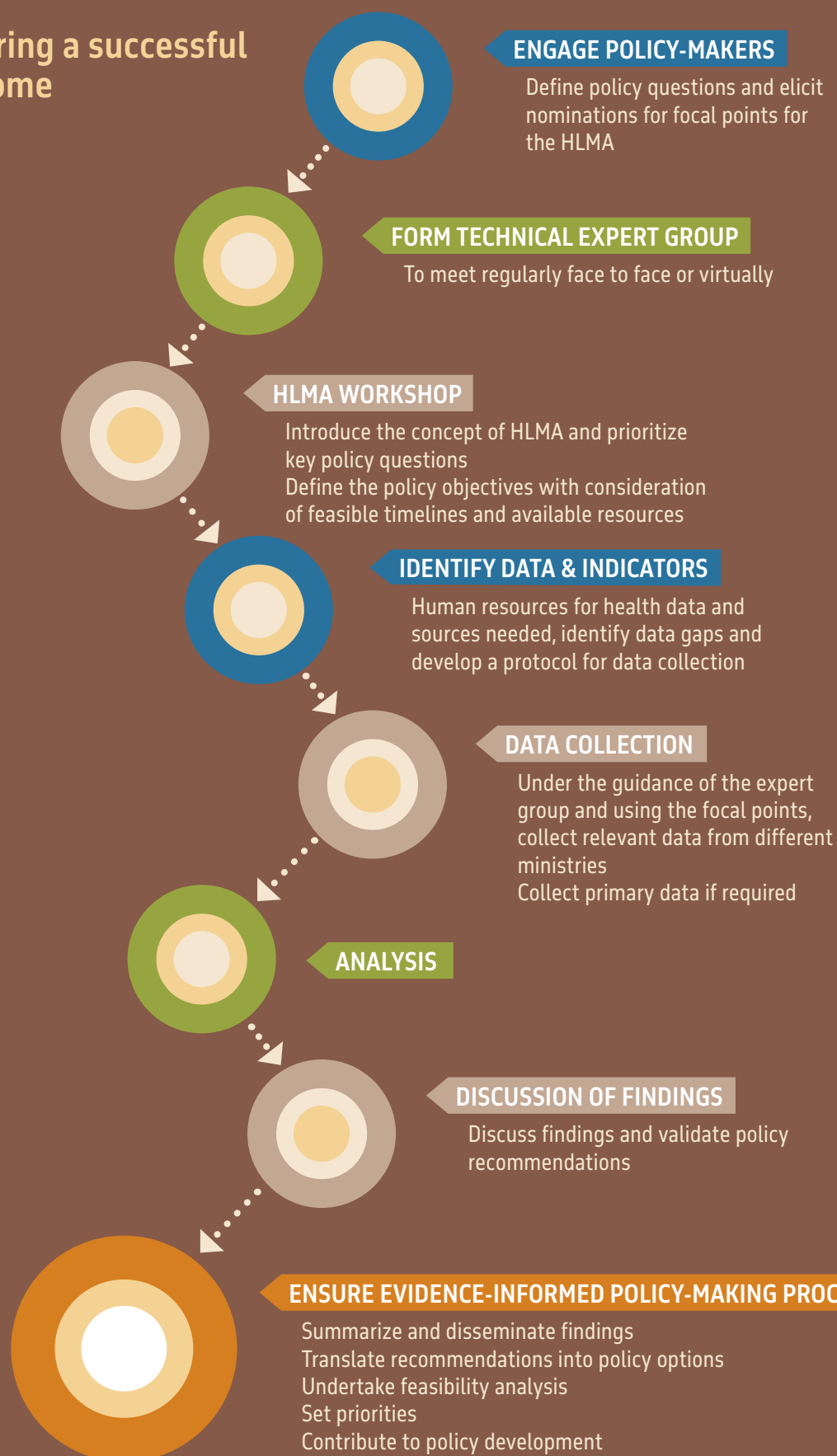
An HLMA is a country-led process in terms of ownership, engagement and collaboration. The approach should be pragmatic, and take into account the setting and constraints. The "why" for the analysis needs to be clearly outlined by the community, stakeholders and decision-makers. Some key questions to ask before commencing an HLMA that can help to shape the plan are as follows.

- **What is the budget and time frame?** What are the financial resources available for the analysis? When will the analysis need to be done? What is a realistic timeline to produce an analysis that meets the objectives of the funder? These questions should result in an indication of the feasibility of various approaches and an agreement on outcomes that can realistically be achieved under those constraints. Will there be a budget for primary data collection if needed?
- **How will data and information be made available for the HLMA?** What data on the health workforce and information are currently available – public, private, donors? What information is available on past human resources for health policies, plans, strategies, and their effects? Will data be made available to an external team? Who will extract the data? Who will compile and clean the data? Will there be a focal point made available for data collation – in the ministry, the private sector, councils or other bodies?
- **Who will form the HLMA team?** Based on the budget, time frame, and data needs, who will form the key team for the HLMA? Can we bring into the team the skills needed for data collection and analysis, and writing reports to inform policy development? Do members of the analysis team have a good knowledge of the country-specific context? Who will oversee the HLMA? Who will be responsible for project management and budget? How acceptable is this oversight to the stakeholders?

The scope and timeline of the HLMA will vary by context. When time and financial resources are limited and data are sufficiently available, an HLMA can be conducted more rapidly. However, the planning stage and the steps outlined here are important elements to ensure the success of the HLMA. In addition, there are other important steps to ensure the HLMA is successful. These are outlined in [Figure 2.1](#).

Figure 2.1 Steps in a health labour market analysis

Ensuring a successful outcome



2.2 Steps in a health labour market analysis

Step 1. Engage senior policy-makers and other stakeholders

Relevant stakeholders, including senior policy-makers and decision-makers, should be engaged at the first stage. The political economy analysis (see Module 4) is an important element of ensuring that appropriate stakeholders are included:

- to establish what one is trying to achieve;
- to define the policy questions that justify the HLMA and define the “why” of the HLMA;
- to identify possible focal points to accompany the HLMA.

Actors involved

Even when the request for an HLMA comes directly from the minister of health, it is important to engage with senior policy-makers across the various departments in the ministry and other relevant ministries (education, labour, planning, public administration, regional development, finance and others as needed) and public agencies. It is also critical to involve relevant stakeholders such as professional councils, associations and trade unions, educational institutions, and public and private employers of health workers, aid agencies and NGOs. Step 1 is about engaging stakeholders in the process of HLMA, getting as much buy-in as possible, facilitating an understanding of the objectives and process of the HLMA, and accessing relevant data and information.

Process

This step is about defining the strategic direction of the HLMA. This is best done by meeting one to one directly with the key stakeholders, but it can also be done by forming an advisory group responsible for strategic oversight, which can engage senior policy-makers and listen to their concerns and objectives in relation to health workforce issues. It is an opportunity to get their support in the process of conducting the HLMA and to ask them to nominate focal points who will serve an important role in the technical aspects of the HLMA. If the analysis is being done outside the ministry, designated focal points are essential to facilitate data collection and validation. Ideally, these individuals could contribute to the analysis itself and internalize the HLMA process in the ministry. This will provide a means of clarifying the objectives of the HLMA and proposing a budget and timeline that will be acceptable to those who commission the HLMA.

Expected outputs

Expected outputs of step 1 are:

- key policy questions identified
- HLMA focal points nominated.



Step 2. Form the HLMA team

This step consists of bringing together the multidisciplinary technical expert group (or “HLMA team”) with relevant competencies and knowledge of the context to conduct the analysis. Here the focal points identified in step 1 will be brought into the HLMA team.

Actors involved

Actors involved will include ministry focal points and the project team, including project managers. Skills are needed in labour economics, demography, policy analysis, statistics, qualitative research methods and communication. Working closely with the focal points can ensure ownership, alignment with national priorities and sustainability of such analyses once the initial HLMA is complete.

Process

A list of technical experts from within and outside the ministry of health will be proposed. This can also be done via a call for expression of interest and selection of the proposal that best meets the objectives of the HLMA.

Expected outputs

Expected outputs of step 2 are:

- HLMA team established
- roles in HLMA process are clearly defined.

Step 3. Host an HLMA workshop

Not all individuals on the HLMA team will have experience with labour markets. Therefore a workshop to introduce the key concepts, discuss currently known health workforce issues, and validate and prioritize policy questions and issues raised by senior policy-makers (output from step 1) will help bring a wide array of interested actors together. An overview of the health workforce situation (including density of health workers, sources of supply, employment rates, migratory flows, role of the private sector) can serve as a basis for the discussion.

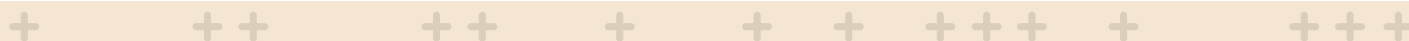
Actors involved

All stakeholders will be involved at this stage.

Process

Generally, a one-day interactive workshop is appropriate, given that participants are senior people with a loaded agenda. The workshop can serve three central purposes:

- knowledge translation: to explain in a simple language what an HLMA is and give some examples of how HLMA has helped policy-makers in other countries to improve some aspects of human resources for health;



- prioritizing policy questions: to identify and prioritize the key policy questions and issues to be addressed by the HLMA;
- team building: to enable informal interactions among participants, which can be useful at later steps of the process.

Expected outputs

Expected outputs of step 3 are:

- key concepts of HLMA clear to HLMA team
- key policy question prioritized
- objectives of HLMA defined.

Step 4. Identify indicators

Once the country-specific policy questions that will form the focus of the HLMA have been decided [output from step 3], the next step is to identify the indicators and information required to respond, and relevant data and sources. This is done in accordance with a framework that explains the dynamics of the health labour market – how demand and supply are formed, how they evolve and what influences this evolution. Data gaps are identified, and a protocol developed for data collection. Focal points can facilitate access to the data needed, which are often housed in different organizations.

Actors involved

Actors involved will include the HLMA team and holders of data and information (including national labour, education, immigration, and gender statistics agencies, registration bodies, and researchers).

Process

A survey will be undertaken of available data and negotiation of access will commence. Consultation with data sources enables assessment of the quality of data (reliable, valid, consistent over time, recent) and identification of gaps and of strategies to bridge them. A protocol for data collection is then prepared.

Expected output

The expected output of step 4 is:

- a list of indicators that will serve as inputs to the HLMA.

Step 5. Data collection

This step involves the implementation of the protocol for data collection. Secondary and primary data (if required) are collected under the guidance of the HLMA team.



Actors involved

The HLMA team and focal points.

Process

Mobilization and collection of data will be carried out in collaboration with the focal points. The duration of this process is usually one to three months.

Expected outputs

The expected outputs of step 5 are:

- data for indicators
- data for analysis.

Step 6. Analysis

The framework of health labour market dynamics serves to structure the analysis to ensure that it covers all the important components of the health workforce situation. This entails the analysis of demand, supply, and the education pipeline, and their determinants.

Actors involved

Actors involved will be the HLMA team and focal points.

Process

Analysis usually takes three to six months.

For steps 4–6, other modules of the HLMA guidebook identify relevant indicators and give guidance on where to find the data and information required to build them and on how to proceed with the analysis.

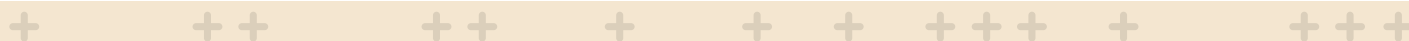
Expected output

The expected output of step 6 is:

- a first draft of the HLMA.

Step 7. Validation

A validation of findings can first take place with the HLMA team, notably with the focal points. Policy recommendations can be derived from the results of the analysis in collaboration with the focal points, and then submitted to stakeholders for discussion. This step can be aligned with the political economy analysis (see Module 4). Recommendations need to be realistic in terms of being acceptable to the stakeholders, affordable and legally feasible. Another important criterion of feasibility is the existence of organizational capacity to implement the recommendations. This step has important links to Module 12.



Actors involved

The HLMA team, focal points and stakeholders.

Process

A workshop of approximately two days will be organized for the validation of the findings and formulation of policy recommendations.

Expected outputs

The expected outputs of step 7 are:

- findings validated
- initial policy recommendations formulated for key policy questions
- acceptability confirmed.

Step 8. Publication of results

Results will be disseminated through various means, such as a report, policy brief and presentation to policy-makers.

Actors involved

The HLMA team and focal points.

Process

The process will involve producing an HLMA report and policy briefs, and developing a communication strategy to reach out to health sector workers, organizations and the general public.

Expected outputs

The expected outputs of step 8 are:

- HLMA report
- policy briefs for policy questions
- dissemination plan.

Step 9. Implementation of recommendations

If the purpose of an HLMA is to inform policy, then the next step after the dissemination of results is to use the results in health workforce policy development, and a review of current policies.

Actors involved

The ministry of health and other relevant senior decision-makers.



Process

Evidence-informed recommendations will be incorporated into national health workforce planning documents.

Expected outputs

The expected outputs of step 9 are:

- policy review
- policy development
- impact analysis.

In summary, the HLMA needs to address priority policy questions and make concrete policy recommendations so that policy-makers can take evidence-informed decisions on human resources for health. HLMA is only as useful as its ability to contribute to the policy process.





Module 3

Data sources and collection tools: National Health Workforce Accounts

Summary

- This module presents how to identify, collect and use essential data on the health workforce for the health labour market analysis (HLMA).
- HLMA requires the use of data, indicators and modelling.
- HLMA requires data gathering across several stakeholders. Various sources need to be assessed and combined.
- The task of collecting data from various sources, in different places, using different formats and nomenclatures, is simplified by the availability of a human resources for health information system (HRHIS).
- Within that context, the National Health Workforce Accounts (NHWA) is a system that was designed to facilitate this process of harmonization.
- Because NHWA indicators are aligned to the health labour market framework, they are of direct utility for HLMA.
- An overview of data sources, and their strengths and weaknesses, is also presented in this module, as well as advice on how to evaluate data quality.

3.1 Introduction

This module presents how to identify, collect and use essential data on the health workforce that are to be used for HLMA. Data, indicators and modelling are essential for conducting an HLMA. In this module, data sources and collection are described; estimation approaches using statistical modelling are beyond the scope of the module.

HLMA covers a wide range of topics related to human resources, including education, finance and regulation. Consequently, the required data are scattered across a number of entities. The task to collect data from various sources, in different places, using different formats and



nomenclatures, is fortunately simplified by the availability of a human resources for health information system (HRHIS). The National Health Workforce Accounts (NHWA) is a system that was designed to facilitate the process of gathering all the necessary data and harmonizing the information for use by decision-makers and policy-makers.

The quality of an HLMA can only be as good as the data it uses, and a major effort is required to ensure that the best data are identified, compared and used for the analysis. Various data sources need to be assessed and combined. An overview of possible sources and their strengths and weakness, and guidance on how to evaluate data quality, are presented below.

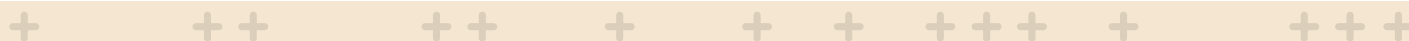
3.2 Overview of data for HLMA

Data are required for all aspects of the HLMA. HLMA relies on the application of a common analytical framework, which in this instance is the health labour market framework described by Sousa et al. [1]. The health labour market framework encompasses a number of components related to education, supply of and demand for labour in the health and related sectors, labour flows, and the regulatory and policy environment.

Using the modules in this guidebook, two type of data analysis can be conducted. They are not mutually exclusive and have several linkages.

- **Descriptive analysis.** This type of analysis provides a situational snapshot of the health workforce, its components (such as education) and challenges, such as inequity. This requires data on the current stock of health workers, expenditure, policy measures, working conditions and other variables. These statistics are usually collected through available data collection instruments, aiding their reproducibility. Descriptive assessments using these data can therefore be conducted at different points in time to assess trends.
- **Causal analysis.** This type of analysis provides an understanding of the dynamics of the health labour market and the role of its various components, including flows in the education system and flows in the labour market, and the role played by funding and its allocation. For conducting these analyses, a mix of indicators is required providing both descriptive situational information and information on flows through the system. For example, stock data on the health workforce at particular points in time could be augmented by survey-generated data on inflows of foreign-trained workers to aid understanding of how the workforce changes over time. For several indicators, particularly those related to flows, data are not necessarily collected routinely during regular data collection processes.

Other indicators are exploratory and used for the purpose of research, and might evolve over time in the light of the research carried out. The data required for these indicators will be



specifically collected for the HLMA, entailing specific design and calculation based on multiple data.

Finally, some concepts are not easily summarized by a single statistic, but are better defined by a selection of relevant data. For example, productivity or job satisfaction can reflect multiple factors requiring collection of a range of data. Often, only proxy measurements are available to aid understanding of the underlying concepts that the data are attempting to summarize.

Table 3.1 provides a selection of indicators that are available in various modules of the guidebook, organized by type of indicator. It is recognized that this classification is somewhat arbitrary and is likely to vary from country to country. For example, in countries with limited information systems, statistics on the number of pharmacy graduates could be collected through surveys or in-depth costly investigations. This indicator would therefore be at the stage of a research activity, while in countries with more advanced information systems such data are routinely collected and would be readily available.

One indicator that is common to the various modules is the stock of health workers, disaggregated by occupation. While this seems to be a simple indicator, it requires in-depth analysis and scoping.

First, it requires a decision on the definition of "health worker". *The World health report 2006 [2]* defined health workers as "all people engaged in actions whose primary intent is to enhance health". If the broad definition of health is applied as "a state of complete physical, mental and social well-being", then this implies that the list of potential health workers goes far beyond those workers providing direct clinical care. Therefore, the initiator of an HLMA should always consider the scope of the study and the conceptual limitation that is given to the definition of "health worker".

Even in cases where the HLMA is limited to a specific cadre, such as medical doctors or nursing personnel, the scope of that occupation also needs clear definition. For example, for nursing personnel, would the HLMA include nursing aides, who are classified as "health care assistants" in ISCO-08² under code 5321 [3], or would it include nursing associate professionals, or only nursing professionals?

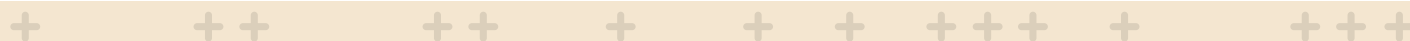
Once a definition is applied for health workers or a specific cadre involved in the HLMA, then all data and indicators should be aligned with this definition to the extent possible. Guidance is given below on classifying health workers using the ISCO-08 classification.

² International Standard Classification of Occupations, 2008 [3].



Table 3.1 Selected indicators from modules of the HLMA guidebook, by type of indicator

Module	Situational (more used for descriptive HLMA)	Flows (more used for causal or analytical HLMA)	Summary statistics (from individual-level data)	Research (indicators not routinely collected)	Concepts (complex indicators, often using proxy data)
5. Macroeconomic factors	Health employment as share of total employment	Official development assistance Private health expenditure as share of current health expenditure Public health expenditure as share of current health expenditure Domestic general government expenditure as share of general government expenditure	Out-of-pocket expenditure	Employment elasticity with respect to gross domestic product (GDP)	Attractiveness of the health sector for potential employment
6. Analysis of the health education market	Investment in infrastructure (public or private), expenditure (public or private), training positions, occupation, number of educational institutions, number of trainers	Graduates, applicants, admissions, number of seats, level of training (minimum duration of education for a specific cadre), attrition	Loans and scholarship to students, faculty salaries and benefit, tuition fees, level of training (duration of education if at individual level)	Placement capacity, recurrent costs such as books, computers, and clinical equipment, attrition rate	Classroom and clinical training settings – equipment and maintenance, curriculum content, approaches to training
7. Supply of health workers and its determinants	Stock by sector (health or non-health) Stock by occupation, geographical location, age, sex, ethnic origin, sector, number of filled positions	Yearly recruitment Migration	Wages, working hours	Labour market participation rates	Preference for working in rural or urban areas
8. Demand for health workers and its determinants	Willingness and capacity to employ health workers	Job vacancies, unemployment	Remuneration, compensation and benefits, number of worked hours	Job turnover, productivity	Employment conditions, quality of jobs, health care regulation



Module	Situational (more used for descriptive HLMA)	Flows (more used for causal or analytical HLMA)	Summary statistics (from individual-level data)	Research (indicators not routinely collected)	Concepts (complex indicators, often using proxy data)
9. Gendered dimensions of the health labour market	Concentration of men and women in types of occupations at different levels of the health workforce Type and frequency of violence and harassment	Career progression Retention, productivity, turnover, attrition	Promotion Wages Health worker safety and well-being	Leadership gap Gender pay gap	Working conditions, decent work Occupational segregation by gender Violence and harassment
10. Analysing the health workforce in the private sector	Share of training seats in the private sector	Yearly graduates from private institutions	Wages Fees from private training institutions	Number of health workers in the private sector Yearly recruitment in the private sector	Employment conditions in the private sector Share of health workers in dual practice
11. Health labour market mismatches	Stock by sector (health or non-health)	Unemployment, job vacancies, number of people trained	Wages	Discrimination factors (gender, race, age, religion, disability), productivity, strikes, turnover, absenteeism, vacancies	Health workforce well-being, skills

3.3 National Health Workforce Accounts and its use

3.3.1 Overview of National Health Workforce Accounts

Following Member States requests through successive resolutions (World Health Assembly resolutions WHA69.19 and WHA70.6) and as a key outcome of the Global Strategy on Human Resources for Health: Workforce 2030, WHO developed in 2017 the National Health Workforce Accounts (NHWA) [Box 3.1]. These are a series of normative documents to provide experts and policy-makers with standard tools and guidance to strengthen their HRHIS. Table 3.2 presents some challenges related to the health information systems (HIS), and in particular HRHIS.



Box 3.1 What is NHWA?

The NHWA is a system by which countries progressively improve the availability, quality, and use of health workforce data through monitoring a set of indicators to support achievement of universal health coverage, SDGs and other health objectives. The purpose of the NHWA is to facilitate the standardization and interoperability of health workforce information.

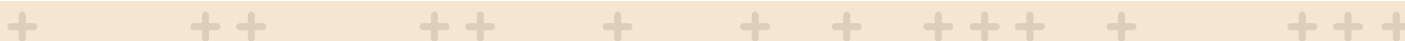
- The NHWA define standardized indicators to:
- generate reliable human resources for health information and evidence;
 - enable planning, implementation and monitoring of workforce policies towards universal health coverage;
 - improve comparability of health workforce data nationally and globally.

Table 3.2 Main elements of HIS and HRHIS and frequent challenges

Main elements	Challenges
Governance and legal context	Weak and not inclusive governance, fragmentation of systems
HIS resources (human input, information technology, finance, stakeholders)	Interoperability challenges, multiplicity of tools and processes
Data (definitions, sources, indicators, flow, quality)	Lack of common data definitions and standards across diseases and service areas, inadequate data flow
Products, dissemination strategy and uses	Limited use of data at collection points, data collection and products not guided by policy questions and needs for decision-making
Sustainability	Limited funding for HIS/HRHIS

The NHWA was designed to enable policy-makers and stakeholders to tackle several challenges related to the health workforce. A total of 78 key indicators distributed in 10 modules were selected by a group of international experts and stakeholders. The modules cover topics including workforce stock and flows, distribution, education statistics, financing of the education of health workers, working conditions, governance and assessment of the maturity of the HRHIS. These represent a large basket of indicators to monitor and respond to health workforce challenges.

The standardization of indicators in the NHWA followed the principle of not reinventing the wheel, and focusing on existing indicators already defined for different reporting activities. For example, indicators on health financing and definition of facilities relied on definitions used in the System of Health Accounts; indicators on education finance were derived from National Education Accounts; and the level of activity of health workers was based on the Organisation



for Economic Co-operation and Development (OECD), Eurostat and WHO Regional Office for Europe joint data collection on non-monetary health care statistics.

The indicators on stock and distribution in Module 1 of the NHTA are aligned with SDG 3, target 3.c and its indicator 3.c.1, on health workforce density and distribution. This enables single reporting at all levels, facilitating global assessment reporting of this SDG indicator. Two indicators in Module 1 monitor migration statistics of health workers, which enables monitoring of and reporting on the WHO Global Code of Practice on the International Recruitment of Health Personnel. Beyond stock, distribution and migration, the selection of indicators for the HRHIS and for the HLMA should be guided by key policy questions on the health workforce. Making best use of the NHTA enables an HLMA to use standard indicators.

The indicators defined in the NHTA handbook [4] are displayed in **Table 3.3**.

Table 3.3 NHTA indicators

Indicator number	Indicator name
Module 1: Active health workforce stock	
1 – 01	Health worker density
1 – 02	Health worker density at subnational level
1 – 03	Health worker distribution by age group
1 – 04	Female health workforce
1 – 05	Health worker distribution by facility ownership
1 – 06	Health worker distribution by facility type
1 – 07	Share of foreign-born health workers
1 – 08	Share of foreign-trained health workers
1 – 09	Share of workers across health and social sectors
Module 2: Education and training	
2 – 01	Master list of accredited health workforce education and training institutions
2 – 02	Duration of education and training
2 – 03	Applications for education and training
2 – 04	Ratio of admissions to available places



Indicator number	Indicator name
2 – 05	Ratio of students to qualified educators for education and training
2 – 06	Exit/drop-out rate from education and training programmes
2 – 07	Graduation rate from education and training programmes
Module 3: Education and training regulation and accreditation	
3 – 01	Standards for the duration and content of education and training
3 – 02	Accreditation mechanisms for education and training institutions and their programmes
3 – 03	Standards for social accountability
3 – 04	Standards for social accountability effectively implemented
3 – 05	Standards for social determinants of health
3 – 06	Standards for interprofessional education
3 – 07	Agreement on accreditation standards
3 – 08	Continuing professional development
3 – 09	In-service training
Module 4: Education finances	
4 – 01	Total expenditure on higher education
4 – 02	Total expenditure on health workforce education
4 – 03	Average tuition fee per student
4 – 04	Investment in transformative education and training
4 – 05	Expenditure per graduate on health workforce education
4 – 06	Cost per graduate of medical specialist education programmes
4 – 07	Cost of qualified educators per graduate
4 – 08	Total expenditure on in-service training and continuing professional development
Module 5: Health labour market flows	
5 – 01	Graduates starting practice within one year
5 – 02	Replenishment rate from domestic efforts
5 – 03	Entry rate for foreign health workers

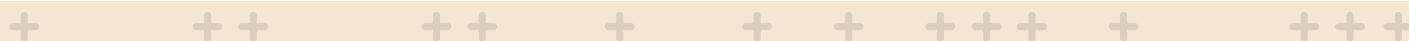


Indicator number	Indicator name
5 – 04	Voluntary exit rate from health labour market
5 – 05	Involuntary exit rate from health labour market
5 – 06	Unemployment rate
5 – 07	Vacancy rate
Module 6: Employment characteristics and working conditions	
6 – 01	Standard working hours
6 – 02	Health workers with a part-time contract
6 – 03	Regulation on working hours and conditions
6 – 04	Regulation on minimum wage
6 – 05	Regulation on social protection
6 – 06	Health worker status in employment
6 – 07	Regulation on dual practice
6 – 08	Regulation on compulsory service
6 – 09	Measures to prevent attacks on health workers
6 – 10	Attacks on health-care system
Module 7: Health workforce spending and remuneration	
7 – 01	Total expenditure on health workforce
7 – 02	Total official development assistance on health workforce
7 – 03	Total expenditure on compensation of health workers
7 – 04	Public expenditure on compensation of health workers
7 – 05	Entry-level wages and salaries
7 – 06	Policies on public sector wage ceilings
7 – 07	Gender wage gap
Module 8: Skills mix composition for models of care	
8 – 01	Percentage of health workforce working in hospitals
8 – 02	Percentage of health workforce working in residential long-term care facilities



Indicator number	Indicator name
8 – 03	Percentage of health workforce working in ambulatory health care
8 – 04	Specialist surgical workforce
8 – 05	Family medicine practitioners
8 – 06	Existence of advanced nursing roles
8 – 07	Availability of human resources to implement the International Health Regulations
8 – 08	Applied epidemiology training programme
Module 9: Governance and health workforce policies	
9 – 01	Mechanisms to coordinate an intersectoral health workforce agenda
9 – 02	Central health workforce unit
9 – 03	Health workforce planning processes
9 – 04	Education plans aligned with national health plan
9 – 05	Institutional models for assessing health care staffing needs
Module 10: Health workforce information systems	
10 – 01	HRHIS for reporting on International Health Regulations
10 – 02	HRHIS for WHO Code of Practice reporting
10 – 03	HRHIS for reporting on skilled attendance at birth requirements
10 – 04	HRHIS for reporting on outputs from education and training institutions
10 – 05	HRHIS for tracking the number of entrants to the labour market
10 – 06	HRHIS for tracking the number of active stock on the labour market
10 – 07	HRHIS for tracking the number of exits from the labour market
10 – 08	HRHIS for producing the geocoded location of health facilities

To help countries and stakeholders, an implementation guide summarizes key steps for NHWA implementation [5].



3.3.2 Tools and support

Several tools are available for the NHTWA. These are available in a dedicated webpage: <https://www.who.int/hrh/statistics/nhtwa/en/> [6]. Here is a detailed list with links and a short description.

- **Handbook.** This contains the list of 78 indicators throughout 10 modules covering the health labour market. These indicators provide standard definitions of indicators, potential sources and references. See <https://apps.who.int/iris/handle/10665/259360> [4].
- **Implementation guide.** The implementation guide helps countries and stakeholders to strengthen their HRHIS to progressively implement NHTWA. The steps are simply described and enable adaptation to the local context. See <https://apps.who.int/iris/handle/10665/275473> [5].
- **Brochure.** This presents, in a few short pages, the rationale behind the NHTWA, and a brief presentation that can be used for getting buy-in of stakeholders and for advocacy. See <https://apps.who.int/iris/handle/10665/311853> [7].
- **Online platform.** This is the secured data platform used by Member States to monitor their NHTWA indicators and report officially their health workforce statistics for national, regional and global dissemination.
- **Public data portal.** This portal displays validated health workforce data. Occupational profiles, country profiles, and custom queries are available. See <http://apps.who.int/nhtwaportal/> [8].

In addition to these tools, the WHO Health Workforce Department organizes capacity-building events and trainings for policy-makers, stakeholders and researchers willing to improve their knowledge on NHTWA. Requests can be sent to hrhstatistics@who.int.

3.3.3 Health workforce occupations

As mentioned above, most NHTWA indicators are disaggregated by occupation. Several classifications exist and most countries have a national classification of occupations. To enable comparability of data on the health workforce, the International Labour Organization (ILO) has defined a standard for classifying occupations, including different categories of health workers. The most recent international classification is the International Standard Classification of Occupations version 08 [ISCO-08] [3]. This is the classification used for global reporting on the health workforce, for example under SDG target 3.c and the WHO Thirteenth General Programme of Work.

ISCO-08 avoids double counting of workers by providing for each occupation a description of the job occupation, the usual tasks performed and examples of terminologies used at national level. Even though this classification goes to a four-digit level of classification, with 436 individual

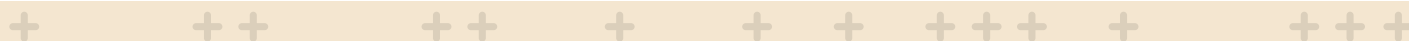


occupations included, it does not allow some useful dimensions of granularity, and sometimes requires the use of ad hoc subcategories. For example, ISCO-08 includes specialist medical practitioners (ISCO 2212) without further granularity. If an HLMA study needs to capture more granularity with statistics by specialty, it is advised to create them as subgroups, equivalent to a fifth digit category. For example, general paediatricians could be created as an ISCO-08 2212.1. The NHTA already includes such subcategorization for several health occupations.

Table 3.4 displays occupations included in ISCO-08.

Table 3.4 List of health-related occupations according to ISCO-08

Group code			Occupational title
Sub-major group	Minor group	Unit group	
22			Health professionals
	221		Medical doctors
		2211	Generalist medical practitioners
		2212	Specialist medical practitioners
	222		Nursing and midwifery professionals
		2221	Nursing professionals
		2222	Midwifery professionals
	223		Traditional and complementary medicine professionals
		2230	Traditional and complementary medicine professionals
	224		Paramedical practitioners
		2240	Paramedical practitioners
	226		Other health professionals
		2261	Dentists
		2262	Pharmacists
		2263	Environmental and occupational health and hygiene professionals
		2264	Physiotherapists
		2265	Dieticians and nutritionists
		2266	Audiologists and speech therapists
		2267	Optometrists and ophthalmic opticians
		2269	Health professionals not elsewhere classified



Group code			Occupational title
Sub-major group	Minor group	Unit group	
32			Health associate professionals
	321		Medical and pharmaceutical technicians
		3211	Medical imaging and therapeutic equipment technicians
		3212	Medical and pathology laboratory technicians
		3213	Pharmaceutical technicians and assistants
		3214	Medical and dental prosthetic and related technicians
	322		Nursing and midwifery associate professionals
		3221	Nursing associate professionals
		3222	Midwifery associate professionals
	323		Traditional and complementary medicine associate professionals
		3230	Traditional and complementary medicine associate professionals
	325		Other health associate professionals
		3251	Dental assistants and therapists
		3252	Medical records and health information technicians
		3253	Community health workers
		3254	Dispensing opticians
		3255	Physiotherapy technicians and assistants
		3256	Medical assistants
		3257	Environmental and occupational health inspectors and associates
		3258	Ambulance workers
		3259	Health associate professionals not elsewhere classified
53			Personal care workers
	532		Personal care workers in health services
		5321	Health care assistants
		5322	Home-based personal care workers
		5329	Personal care workers in health services not elsewhere classified
			Additional health-related unit groups
		1342	Health service managers
		1343	Aged care service managers
		2634	Psychologists
		2635	Social work and counselling professionals
		3344	Medical secretaries





3.3.4 Use of NHTWA to inform HLMA

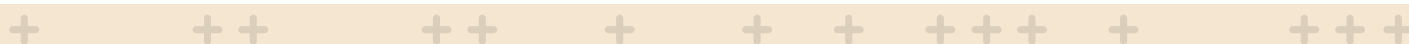
Data reported through the NHTWA are expected to become part of the routine data collection process by countries. Because these are aligned to the health labour market framework, they are of direct utility for HLMA. For example, the routine reporting under the various indicators enables replication, regular updates, and identification of trends, all of relevance to the HLMA. Therefore, when initiating an HLMA in a country, it is important to first assess the implementation of NHTWA in the country. Depending on its situation, analysts involved in HLMA might be advised to strengthen further the implementation of NHTWA in the country, using the network of stakeholders involved. This HRHIS strengthening would increase the sustainability of the HLMA process and facilitate the collection of key data.

Table 3.5 illustrates how NHTWA indicators can be used to support the HLMA domains.

Table 3.5 HLMA domains, indicators and corresponding NHTWA indicators

Domain	Indicators	NHTWA indicators
Supply of training	Cost of training institution, number of seats, number of trainers	4-02, 2-04, 2-05
Demand for training	Number of applicants, tuition fees, entry-level wages	2-03, 4-03, 7-05
Supply of health workers	Stock, number of graduates starting to practise, foreign-born or foreign-trained workers, exits from labour market, by gender	1-01, 5-01, 5-03, 5-04, 5-05
Demand for health workers	Wages, regulations, unemployment, vacancies	7-05, 7-06, 7-07, 6-03, 6-04, 6-05, 6-07, 6-08, 5-06, 5-07
Health labour market description	Stock, geographical location, age, gender, occupation (specialties), sector	1-01, 1-02, 1-03, 1-04, 1-05, 1-06

Regarding information related to health spending, the NHTWA is the main system to obtain such information, in particular through the Global Health Expenditure Database **(Box 3.2)**.



Box 3.2 Global Health Expenditure Database

The Global Health Expenditure Database provides internationally comparable data on health spending for close to 190 countries. The database is open access and supports the goal of universal health coverage by helping monitor the availability of resources for health and the extent to which they are used efficiently and equitably. This, in turn, helps ensure health services are available and affordable when people need them. The Global Health Expenditure Database is the source of the health expenditure data published by the World Bank and the WHO Global Health Observatory.

Source: Global Health Expenditure Database: <https://apps.who.int/nha/database/Home/Index/en>.

3.4 Data sources and quality

3.4.1 Overview of data sources

Several data sources exist for various health workforce indicators. Frequently, several sources are available at the same time for the same indicator. Data collected on human resources for health rarely stem from sources that are primarily designed for HLMA or for routine statistical monitoring. For example, a record of the stock of public sector health workers might be contained in the files of publicly employed staff at the ministry of public service. These records are designed for the purpose of human resource management of publicly employed workers, and would therefore omit privately employed workers, unemployed workers, dual practice, and other elements. So although these data might be complete for the purpose intended, with details on age, gender, remuneration and other criteria, they may lack information on other indicators. This illustrates the need to use several sources of information to maximize the quality of the data required, taking stock of the relative strength of each data source.

As another example, labour force surveys, because of their design, might only capture a relatively small sample of health workers, which would prevent their use for estimation of the size of the workforce, though they could provide information on gender and age, which would enable estimation of the percentage of women in the workforce or the percentage aged 55 years or over.

Each source should be assessed to better understand its strengths and weaknesses [Table 3.6].



Table 3.6 Key attributes and strengths of four common data sources on the health workforce

Attribute	Census	Labour force surveys	Health facility surveys	Routine administrative sources ^a
Complete count of health workforce	***	*	**	**
Coverage by sector (public, private)	***	***	*	**
Disaggregated data by age sex, geographical location	***	**	**	**
Capturing unemployment	*	***	—	*
Rigorous data collection and management	***	***	**	**
Periodicity and regular updating	*	**	**	***
Occupational data coding	*	**	**	**
Sampling errors	***	**	*	**
Tracking of workforce entry to exit	*	**	—	*
Tracking of in-service training, productivity	—		***	*
Accessibility to microdata	**	***	**	*
Relative cost	*	**	***	**

Strength of each attribute ranked from low (*) to high (***).

^a Including payrolls, human resources for health registries.

— indicates that the relevant attribute cannot be captured by the source.

Source: Adapted from Siyam et al. [9].

3.4.2 Data quality and triangulation

Once different sources of data have been defined, the quality of the data can be checked.

Usual data checking

Usual data checking includes assessing distribution of indicators, outliers, and missing values. Abnormalities and missing values should not affect a particular subpopulation, otherwise the analyst should suspect the presence of bias. Several tools exist for statisticians and economists to identify data abnormalities and missing values, and methods are available to correct for these.



Alignment of definition, time and coverage

An HLMA usually combines various items of information collected from different data sources, and indicators are often computed with two different data, one used as the numerator, the other as the denominator. Consistency of both the numerator and denominator is important – for example, when computing the density of health workers per 10 000 population, the numerator on stock and denominator on population size should be based on the same year and same definition of population covered.

Definition. As an example, it would be important that the definition of nurses who graduate from the education system is identical or as close as possible to the definition of active nurses to which they are compared. If the latter does not include nursing associates while the definition of nurse graduates does, this could create imbalances in the analysis and lead to biased conclusions. Definitions of indicators should be consistent across the indicators used in the HLMA.

Time. Stock and flow from the education market to the labour market implies a dynamic system whereby workers enter a market at a certain point in time and could leave at another. The combination of indicators should be finalized after checking which period each datum corresponds to. From the example above, the number of graduates in 2020 would be those graduating from 1 January 2020 to 31 December 2020, and the stock in 2020 could be the stock as of 31 December 2020. The stock in 2020 would therefore already include students who graduated in 2020.

Coverage. Each source of data can vary in its coverage; every effort should be made to align coverage. In the example above, the stock of nurses might be known for all licensed nurses while the number of new graduate nurses might only come from the public sector. As a result of the subsequent misalignment, the analysis would lead to an underestimation of the replenishment from domestic training.

Double counting

While the ISCO classification should in principle avoid double counting of individuals, the existence of dual practice creates the risk of double counting the same health workers employed in two or more facilities. Double counting could also occur in education statistics when diplomas are linked, for example in the case of graduates as medical doctors and graduates as medical doctor specialists. Those graduating as medical specialists would have been counted among the medical doctors a few years ago, artificially inflating the number of medical doctors graduating. The same applies to nursing associates and nursing professionals.



Triangulation

Triangulation is broadly defined as synthesis and integration of data from multiple sources through collection, examination, comparison, and interpretation. Given the existence of multiple information sources for health workforce monitoring, it is crucial for efforts to synthesize and triangulate figures across diverse sources to support the health workforce assessment and planning.

The triangulation of health workforce data can improve the accuracy and ensure the quality of data. As the information examined is collected by different methods, by different stakeholders and in different populations, the findings can cross-validate conclusions and corroborate interpretations. The process thereby reduces the effect of systematic bias and random error that may be present in a single study.

Also, with involvement of all relevant stakeholders in data gathering, the triangulation ensures good buy-in of the data, analysis and interpretation from all stakeholders.

Additionally, the triangulation can answer various questions, including explaining the trends and distribution of health workers, providing information on the active stock of health workforce, and assessing the skills mix of the health labour market. In practice, triangulation can make use of pre-existing, routine data sources. This allows a rapid understanding of the situation and facilitates timely and appropriate decision-making during health crises. Moreover, data from different sources can often provide complementary information.



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Section 2

Analysing core health labour market elements

Module 4 shows how the labour market in the health sector is strongly influenced by the political environment in which it exists.

Module 5 summarizes the macroeconomic factors shaping the health employment sector, and shows how key macroeconomic factors influence the health labour market and the health professional education sector.

Module 6 presents an analysis of the health professional education market, identifies the challenges it faces and the factors that influence it, and outlines options for addressing those challenges.

Module 7 on supply of health workers and its determinants, discusses how to measure supply and ascertain the influence of both wage and non-wage job characteristics.

Module 8 on demand for health workers and its determinants, introduces the concept of labour market demand and its potential usefulness, as well as its limitations in informing and evaluating health workforce policies.



Module 4



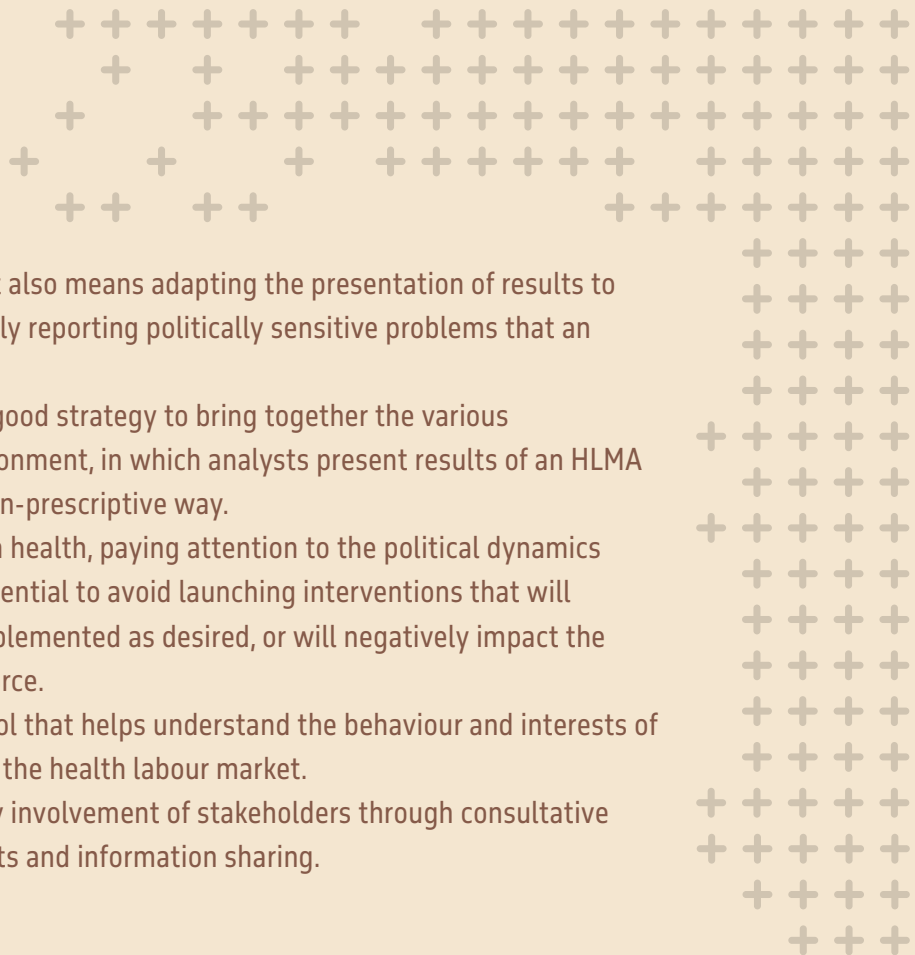
Political economy analysis

Summary

- This module presents a component of HLMA that aims at identifying the political factors shaping the health labour market, that is, the power relationships between the various actors and their position on specific issues within the context of the policy processes that enable success or prevent failure at different levels of the market and thereby inform potential corrective responses.
- Political economy analysis is a useful tool for analysing these political factors, and can serve to alert policy-makers to the importance of the political environment in shaping the health labour market.
- The module first identifies ways in which the health labour market may not function perfectly and why this happens. Labour market issues often reach the political agenda as a result of a crisis, such as acute shortages or a sanitary shock such as the COVID-19 pandemic.
- The main section of the module introduces strategies and tools to support a political economy analysis and discusses how to use its results. Implementing interventions that aim at changing the structure or dynamics of a health labour market is a highly political exercise.
- Political economy analysis is an exercise to track the position, behaviour, and influence of actors on the health labour market. It looks for responses to questions such as:
 - How and by whom are priorities, policies, plans, laws, regulations and strategic decisions affecting the supply and demand of health workers developed?
 - Who are the main stakeholders (within government and others)?
 - What are their interests in the issue?
 - What is their position relative to the issue?
 - What is their level of power to influence the decision-making and implementation process?
 - How can this information inform policy choices?

This module also presents the essential steps that any political economy analysis needs to follow.

- To be useful, a political economy analysis has to respond to the needs of policy-makers and planners in a timely manner and in a format and language that communicates the



information in an effective way. It also means adapting the presentation of results to various audiences and strategically reporting politically sensitive problems that an HLMA may identify.

- Conducting policy dialogues is a good strategy to bring together the various stakeholders in an enabling environment, in which analysts present results of an HLMA and discuss policy options in a non-prescriptive way.
- For policy-makers and planners in health, paying attention to the political dynamics of the health labour market is essential to avoid launching interventions that will meet resistance and fail to be implemented as desired, or will negatively impact the performance of the health workforce.
- Political economy analysis is a tool that helps understand the behaviour and interests of the various actors with a stake in the health labour market.
- A condition of success is the early involvement of stakeholders through consultative processes, and continuing contacts and information sharing.

4.1 Introduction to political economy analysis

This module focuses on the political factors that influence the health labour market. While a health labour market analysis (HLMA) must take into account the macroeconomic environment, it is just as important to take into account the broader cultural, economic, social, historical and political context. This is in line with the literature on how public policies are adopted. An influential theory proposes that it results from the conjunction of three streams: the “problem stream” (a problem has first to be recognized as in need of a public intervention); the “policy stream” (acceptable options for the resolution must be available); and the “politics stream” (the dynamics of political decision-making) [1]. A political economy analysis helps explain the significant variations in how the health labour market functions in different countries, and even within the same country, as in federal States with regional autonomous jurisdictions (for example, Brazil, Canada, Germany, India, Nigeria and Spain). To understand the specificities of a national health labour market, an analysis of the power relationships between the various actors and their position on specific issues within the context of the policy processes is a useful tool to examine how their interactions shape the market. A well conducted political economy analysis produces knowledge that will inform policy- and decision-making to improve the performance of the health workforce and that of health services. This component of an HLMA can alert policy-makers to the importance of political factors in shaping the market.



The module first defines political economy analysis (Box 4.1), then reviews typical health labour market failures or deficiencies. It then discusses why political economy analysis is needed. The main section of the module introduces strategies and tools to conduct a political economy analysis and discusses how to use its results. A last section lists useful references and sources.

Box 4.1 What is a political economy analysis?

There is no universally accepted definition of what a political economy analysis is, but the one proposed by the United Kingdom Department for International Development ³ is generally considered useful:

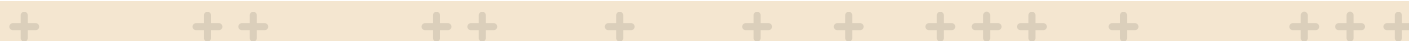
“Political economy analysis is concerned with the interaction of political and economic processes in a society: the distribution of power and wealth between different groups and individuals, and the processes that create, sustain and transform these relationships over time” [2].

It consists in identifying the interests, values, objectives and incentives of the various actors who can possibly influence a policy decision and its implementation, and trying to find which incentives would bring them to collaborate or at least not to oppose the policy.

Most health labour markets experience imbalances between the supply of and demand for health workers [3]. Shortages of labour can occur, for example when available jobs remain unoccupied; or surpluses can occur, for example when there are more health workers than jobs available. Some populations have unmet needs because not enough health workers are available in their area. Political economy analysis is useful to understand why these mismatches exist and to give clues on how to correct them.

In a perfect market environment, the supply of health workers would match demand for the services they provide, but in real life that is never the case. This is because the market is shaped by factors other than the objective to respond to demand, such as policies, laws and regulations that create barriers to entry into education programmes and into the market itself. Rigid definitions of scopes of practice limit the flexibility of the division of labour and the optimal use of skills and qualifications of health workers. For example, an increasing number of countries have adopted policies to expand the functions of nurses, authorizing some of them to undertake examinations or analyses and prescribe medicines under certain conditions [4]. Most other countries still limit their role to one of assistant with little autonomy [5]. Pressures by educational institutions and by occupational and other interest groups, who may have an agenda not entirely aligned with the objectives set by SDG 3 and universal health coverage, also affect the supply of health workers. Additionally, the time lag between decisions aiming at changing supply, such as altering curricula, creating a new specialty within a profession or a new cadre, or reducing the length of studies and their actual effects, makes adjustment

³ The Department for International Development closed on 2 September 2020 and merged with the Foreign and Commonwealth Office to create the Foreign, Commonwealth and Development Office.



difficult in the short term. For instance, to train more doctors, the country may need to build, equip and staff one or more medical schools before training even begins. Then, “producing” graduates will take five or more years. Political economy analysis is a tool to inform decision-makers on these difficulties and on policy options at their disposal to overcome them.

Health labour market issues often come onto the policy or political agenda as a result of shortages (such as in numbers, skills availability or geographical distribution), for example the prospective shortage of 250 000 health workers in the National Health Service in England [6], which became a central issue in the United Kingdom general election in 2019. Strikes by health workers, or pressures by citizen groups, often trigger policy-makers’ interest in and willingness to act on health workforce problems. In a different context, the Ebola virus disease crisis prompted affected countries to design strategies to address already known issues of insufficient numbers and imbalanced distribution of health workers, which the epidemics made a political emergency [7]. There is much pressure for the same to happen to address the challenges created by the COVID-19 pandemic.

Implementing interventions that aim at changing the structure or the dynamics of a health labour market is a highly politicized process requiring engagement with numerous stakeholders and interest groups. Many policy interventions require political support and commitment at the highest level; for example, amending laws to expand the scope of practice of certain cadres can generate strong resistance from professional groups who consider that this is an attack on what they consider their legitimate right to be the only ones authorized to execute certain tasks. For example, medical organizations may oppose the expansion of functions of nurses or pharmacists. Other examples are introducing task sharing, changing selection procedures for access to medical studies, or modifying retirement modalities.

A well conducted political economy analysis can help policy- and decision-makers, managers, educators, and funders design policies and strategies that will be realistic, acceptable and effective in adapting the health labour market to the overarching goals set by the SDGs and the universal health coverage agenda. Such an analysis helps to explain demand and supply mismatches that impact the availability, accessibility, acceptability and quality of the health workforce, and the capacity of the health system to respond to population needs. In sum, political economy analysis can help to avoid health labour market mismatches and mitigate their effects by identifying forces in favour of or against change. In informing policy-makers on the political context, political economy analysis shows the importance of good governance to improve the functioning of the health labour market. Change by decree simply does not work, which is why political economy analysis is needed to inform feasibility, policy sequencing, and strategic choices [8].

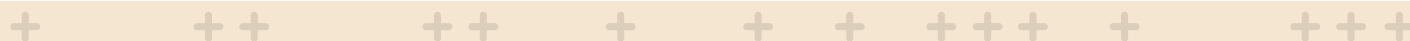


4.2 Political aspects of health labour market mismatches between supply of and demand for health workers

Table 4.1 presents a summary of mismatches in the health labour market and useful indicators to support a political economy analysis.

Table 4.1 Frequently observed health labour market mismatches and useful indicators

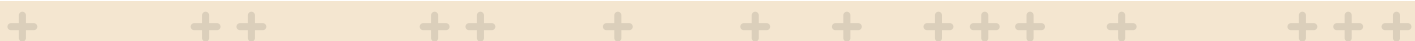
Health workforce dimension [Adapted from (3)]	Examples of mismatches	Useful indicators to support a political economy analysis
Availability: The sufficient supply of a stock of health workers with the relevant competencies and a skills mix that corresponds to the health needs of the population	Shortages of certain cadres (primary care, mental health, geriatrics, occupational health, etc.)	Total number of health workers (stock) by cadre, age, sex, ethnic origin, public or private sector; absolute numbers and full-time equivalent
	Insufficient capacity to absorb all available workers	Labour market participation rates Number employed, unemployed, underemployed Number of filled positions Average time to fill a position
	Inefficient skills mix, low productivity Failure to fully utilize the competencies of nurses, pharmacists or nutritionists	Nurse–doctor ratios Medical team–doctor ratios (medical team to include allied health workers) Definition of scopes of practice
	Insufficient production (lack of teachers, of infrastructures, of clinical training sites) Low attractiveness of certain professions	Capacity of production of educational institutions (number of full-time or part-time teachers, demographic profile, level of education [PhD, MSc, other], student–teacher ratios, funding) Number of applicants, entrants, graduates, drop-outs by cadre, annual trends Number of nationals in training abroad
	Low retention capacity	Attrition: number of early retirements, exits to other sectors, emigration Turnover rates, intention to migrate – requests for certification of qualifications
Dependency on foreign workers	Percentage of foreign practitioners (immigrants, contracted)	



Health workforce dimension [Adapted from (3)]	Examples of mismatches	Useful indicators to support a political economy analysis
<p>Accessibility: The equitable distribution of health workers in terms of travel time and transport (spatial), opening hours and corresponding workforce attendance (temporal), the infrastructure's attributes (physical – such as disabled-friendly buildings), referral mechanisms (organizational) and the direct and indirect cost of services, both formal and informal (financial)</p>	<p>Imbalanced distribution of workers between levels of care (hospital centrism)</p>	<p>Distribution by level of care and type of provider organization (imbalances in the distribution of personnel between health centres, hospitals and other services, such as primary care, rehabilitation or home care)</p>
	<p>Zones with health workforce deficits Population subgroups with unmet health worker needs</p>	<p>Distribution by geographical area Cadre to population ratios Utilization rates per area (rural, remote zones) or population group (minorities, migrants, the poor)</p>
	<p>Suboptimal access to available health workers</p>	<p>Hours of contact with users Productivity rate Absenteeism rate</p>
<p>Acceptability: The characteristics and ability of the workforce to treat all patients with dignity, create trust and enable or promote demand for services; this takes different forms, such as having health workers who understand and speak the local language, or those respectful of the patients' social, cultural and religious values</p>	<p>Mismatch between education of health workers and population needs Low demand due to poor behaviour of health workers (communication, empathy, respect, low motivation)</p>	<p>Degree of alignment of education programmes with population needs Patient-centred education programmes covering competencies such as cultural sensitivity, communication skills Service readiness and performance scores Number of complaints User satisfaction rate</p>
<p>Quality: The competencies, skills, knowledge and behaviour of the health worker as assessed according to professional norms (or other guiding standards) and as perceived by users</p>	<p>Workers with inadequate competencies Compliance with standards Malpractice</p>	<p>Continuing education participation rates Results of accreditation of education programmes Quality of practice measures (adverse effects), discipline cases Management capacity (percentage of managers professionally trained)</p>

What does political economy analysis address?

The health labour market is influenced by political positions and opinions (some of which can be dogmatic or strongly held) at different levels where decisions affecting it are taken. At national level, such decisions originate in the health sector itself, but also in other sectors, notably education, finance, public administration, labour and professional regulators. These may have competing priorities and objectives. There are also policies formulated at international level that affect national health labour markets (see [Table 4.2](#)).





Policies and decisions result from the interaction of numerous actors, each with their own interests, values, beliefs, objectives and stakes (financial, professional, political and individual). There are important variations in access to sources of power that actors can use to influence the policy process [9]. These actors make alliances and coalitions, engage in conflicts, and may change their positions depending on the context. Political economy analysis is an exercise to track the position, behaviour, and influence of these actors on the health labour market. It looks for information to:

- identify the mechanisms that contribute to shaping health labour market policies by asking how and by whom decisions are made on priorities, policies, plans, laws, regulations and strategic matters (financing, education, recruitment, working conditions) affecting the supply of and demand for health workers;
- identify public and private actors who may be affected by a policy and assess the extent to which their interests are affected;
- map the positions (supportive, opposing, indifferent) of these actors and their relative power to influence supply and demand.

This information then serves to guide policy-makers in choosing policy options and designing strategies for their implementation.

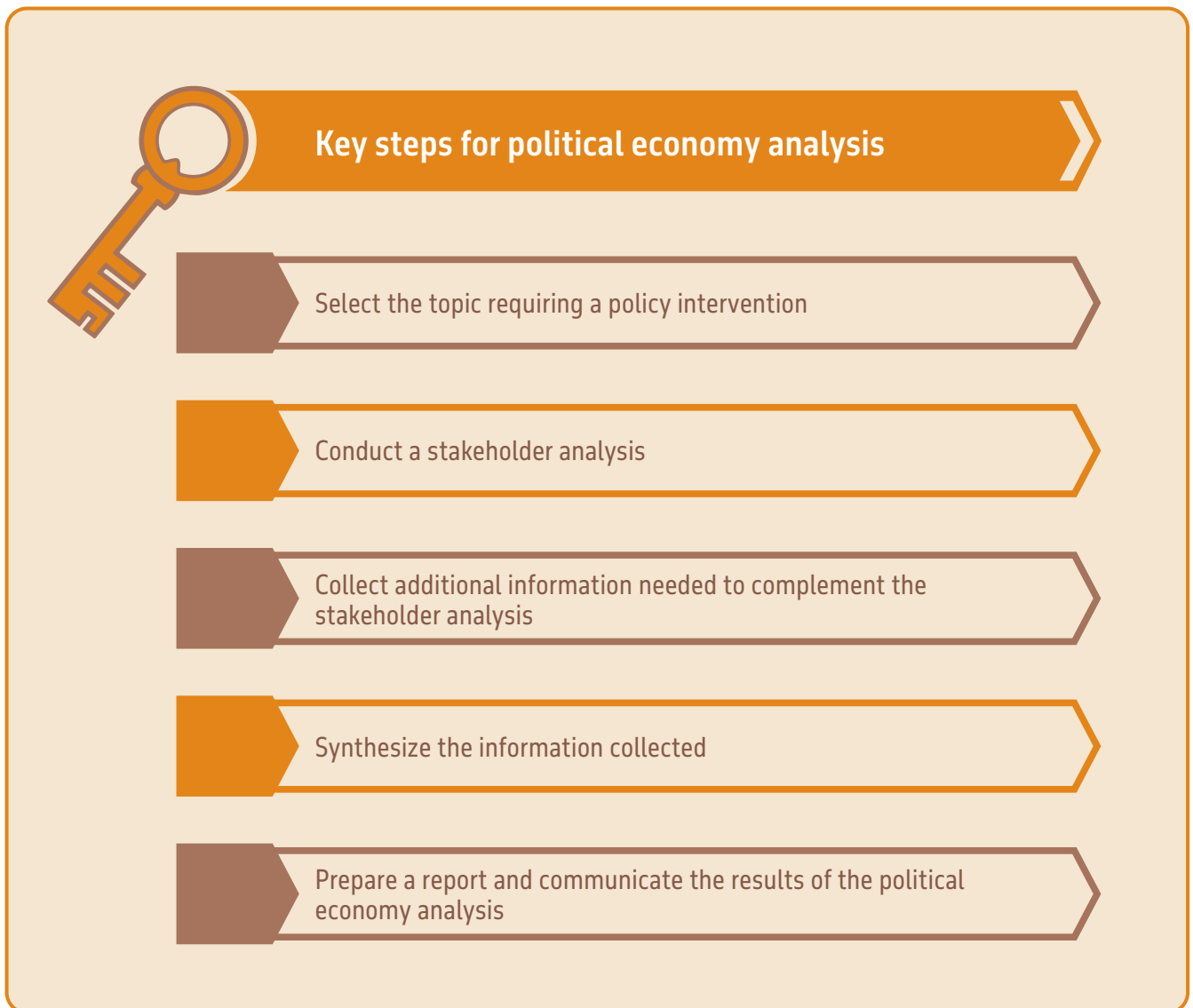
The reference list contains examples of political economy analysis that focus on health workforce topics.



4.3 Conducting a political economy analysis

Figure 4.1 shows key steps in conducting a political economy analysis.

Figure 4.1 Key steps of political economy analysis



There are many examples in the literature of how to perform a political economy analysis; here, we propose one promoted by the United Kingdom Overseas Development Institute for its simplicity and its application to human resources for health issues [10, 11].



Step 1. Select the topic requiring a policy intervention

In most countries, various health labour market mismatches requiring policy interventions coexist: education of health workers not adapted to new needs, geographical imbalances, inefficient composition of the stock of health workers, or too rigid scopes of practice. It is better to analyse each set of related issues separately because the political context and stakeholders involved vary depending on the issue or proposed reform. Also, options of interventions can vary greatly by level of complexity, duration and cost. The selection of the issue can be made by applying criteria such as the urgency of taking action (for example, lack of personnel in emergency services or in some specialties, long waiting lists); the impact of the problem on the pursuit of objectives such as equity of access, cost control, or quality improvement of services; and the amenability of the problem to interventions that have a good potential for effectiveness, and that are affordable, politically acceptable, and for which capacity for implementation exists. The decision on the selection is ultimately the responsibility of the person or body commissioning the analysis; it is prudent to seek technical advice on the implications of the choice and to sound out stakeholders on their eventual collaboration with the analysis.

Step 2. Conduct a stakeholder analysis

The analysis of the interactions between multiple actors within the health sector, and with other sectors at local, national or even international level, is critical to understanding health labour market dynamics. A stakeholder analysis is a tool to produce a comprehensive picture of actors who have vested interests in a policy issue, to map their position in relation to that issue, and to assess their capacity to influence change (positively or negatively). It provides information on where decisions are made and who makes them, and which negotiations and bargaining are taking place. It is a tool to understand and possibly anticipate the behaviour of involved actors and therefore serves to estimate the feasibility of a policy change and help in devising effective reform strategies.

A stakeholder analysis is an iterative process, which in combination with other processes of collection of information helps to plan strategy implementation by identifying facilitators and obstacles, allies and opponents of change. A stakeholder analysis can be more or less in depth depending on policy-makers' objectives and information needs, and on the time and resources available. It is therefore important that those who commission the analysis define clearly what they expect from it.

The analysis will include various operations: the mapping of those who have a stake in the issue, the specification of the information about them, data collection, data analysis and presentation of results. As an illustration, [Table 4.2](#) presents a non-exhaustive list of stakeholders who can influence a health labour market.

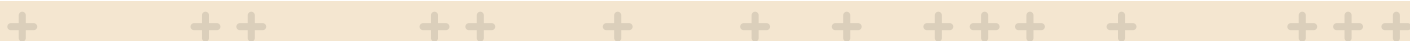


Table 4.2 Who are the stakeholders?

Intervention level	Stakeholder	Examples of influence
National, local	Office of the head of government, cabinet of ministers	Defines policy priorities and manages interactions between the various ministries involved
	Parliament	Through its committees, studies issues and proposes policies and eventually adopts them
	Health ministry and agencies	Define and implement policies, plans, regulations, governance and decision mechanisms impacting the health workforce; recruit, manage health staff
	Other ministries and government agencies	Ministries of education, finance, social security, labour, public service, and planning make decisions and implement interventions that affect the health labour market, with more or less positive effects on it
	Regional or local authorities	Where decentralization or devolution exists, states, regions or municipalities have direct responsibilities for the management of the health workforce
	Regulators, accreditation agencies	Regulators define who can run an education facility, who enters the market, compulsory service; accreditation bodies define and assess compliance with standards that educational institutions and programmes and provider organizations should meet
	Regional and local health authorities	In decentralized contexts, these can recruit, manage health staff
	Educational institutions of health workers (public and private universities, schools, polytechnics); teaching staff, student unions and organizations	Define programmes, learning objectives and contents, select future health workers
	Professional councils	Typically manage licensing, registration, certification, in some rare cases re-licensing, define ethics rules, exercise professional discipline, oversee the quality of practice of their members
	Professional scientific associations	In many countries, specialists form associations, whose membership is voluntary. They issue guidelines, protocols, manage continuing education, give certification, and generally advocate promotion of the specialty
	Professional unions and organizations	Promote and defend the interests of health workers
	Employers (public, private)	Define and manage recruitment, deployment, working conditions, systems of payment and incentives
Insurers	Decide which services to cover, by whom	





Intervention level	Stakeholder	Examples of influence
(National, local)	User associations, advocacy groups	Influence policy directions by promoting the interests of users of services in general or of specific subgroups (persons with a certain condition), channel complaints
	The media, social networks, opinion leaders	Give visibility to health workforce issues, disseminate information
	Political decision-makers	Last but not least, these pay more or less attention to the health workforce agenda differently according to context (crisis situation, election year)
International	United Nations technical agencies	<p>WHO offers guidelines and recommendations on recruitment and retention, education, community health workers, and on global health workforce strategy [12–15]</p> <p>ILO promotes a decent work agenda [16] and more generally plays a normative role in a globalized labour market [17]</p> <p>Recruitment practices and training activities of global health initiatives impact the national workforce [18]</p>
	Financial agencies	<p>The World Bank, regional development banks, and the International Monetary Fund attach conditionalities to loans that impact the health labour market (for example, staff cuts, pay freeze, increased workloads, changes to retirement conditions)</p> <p>The Global Fund to Fight AIDS, Tuberculosis and Malaria funds health system strengthening activities that include some targeting of the health workforce</p>
	Political and economic regional cooperation organizations	<p>The European Commission issues directives on mobility of health workers (using the European Professional Card), on mutual recognition of qualifications, on cross-border services, and on working time (maximum 48 hours per week) applying to its 27 Member States</p> <p>The European Higher Education Area and Bologna Process involves 48 countries engaged in the harmonization of their higher education structure [19]</p> <p>In Asia, the Association of Southeast Asian Nations (ASEAN), formed in 2015, promotes economic integration, which impacts health worker mobility [20]</p> <p>In Africa, regional organizations such as the Economic Community of West African States (ECOWAS, with 15 member States), the West African Economic and Monetary Union (WAEMU, with eight member States), and the Southern African Development Community (SADC, with 16 member States) promote regional integration, which has an impact on health labour markets</p> <p>The Organisation for Economic Co-operation and Development, which groups 36 countries, mostly high-income with two middle-income countries (Mexico and Turkey), has produced a number of analyses and recommendations on health workforce issues in the last 10 years [21]</p>



Intervention level	Stakeholder	Examples of influence
[International]	Bilateral donors	Numerous government aid agencies fund training activities, recruit from the national workforce, and influence workforce policies in the countries where they are active. Major donors are Japan, the United Kingdom and the United States, and, relative to the size of their population, the Nordic countries and the Netherlands ⁴ (some donors only fund human resource activities if they are linked to certain service delivery programmes such as HIV/AIDS or vaccination) [22]
	Private philanthropic donors	Numerous grant-making foundations (Bill & Melinda Gates Foundation is the best known and most important donor in health) also fund training activities, recruit from the national workforce and influence workforce policies through their aid programmes
	NGOs, faith-based organizations	In some countries, NGOs and faith-based organizations substitute or complement public services and employ a significant number of health workers (for example, BRAC in Bangladesh, the Christian Health Association of Ghana, and Santas Casas da Misericordia in Brazil and Portugal)
	Technical assistance from private for-profit or not-for-profit organizations	These advise on or execute programmes and projects in countries. Examples are Cambridge Economic Policy Associates, IntraHealth, JHPIEGO (Johns Hopkins University), John Snow International, and Management Sciences for Health
	International associations of health professionals	Organizations such as the International Council of Nurses, the International Confederation of Midwives, the World Organization of Family Doctors, and the World Federation for Medical Education promote standards of education and practice, and also promote the interests of their respective professions
	International associations of provider organizations	Organizations such as the International Hospital Federation and the European Hospital and Healthcare Federation (HOPE) define competency profiles of managers
	Private multinational companies	Major producers of medicines, equipment and consumables may have a stake in health workforce policy interventions

Table 4.3 gives examples of qualitative information that a stakeholders' analysis will typically try to collect on the identified topic or policy issue. This will help characterize the positions of the different actors and describe the political dynamics that policy-makers will have to deal with. To the extent feasible, it is useful to collect information covering several previous years (five to 10 years) to detect any trends or changes in the positions and behaviours of stakeholders.

⁴ For a full picture of flows of official development assistance, per sector and per donor and recipient, see OECD *Geographical distribution of financial flows to developing countries 2019* [22].



Table 4.3 What analysts want to know about stakeholders

Information on ...	Questions to ask about each stakeholder
Values, beliefs, representations	What is important for the stakeholder, what does the group or organization want to defend or promote, how does it interpret the issue?
Interests, stakes, and degree of involvement	What can or does the stakeholder gain or lose (financial resources, power, image or visibility, votes)? How important are these for the stakeholder and to what extent is it prepared to engage in supporting or opposing the policy proposal?
Objectives	What does the stakeholder want to achieve? What are its stated and unrevealed objectives?
Sources of power	What elements constitute the basis of the stakeholder's power? Legitimacy, information, expertise, credibility, commitment, influence, money, votes, people, access to decision-makers, influence on voters?
Level of power	What is the capacity of the stakeholder to influence policy? What can it change and how?
Accountability lines	To whom is the stakeholder accountable? Multilateral agencies to their funders; bilateral agencies to national parliament; NGOs, professional associations, user groups to their members
Interactions, strategies	Are there alliances, collaboration, conflicts with other stakeholders?
Incentives, disincentives	What influences the stakeholder's position and actions?

The mapping of stakeholders will probably make apparent that even in the same group, say government agencies or physician organizations, there might be divergent positions. Accordingly, the analysis should look within each category at how each stakeholder behaves in relation to an issue or a policy.

Additional useful information should be obtained through document review and interviews of experts (researchers, policy analysts) and of other key informants with a good knowledge of the policy issue. As well as adding information on the present situation, this can serve to reconstruct the history of debates around the policy issue under analysis and to help understand the current dialogue.

- Documents of potential interest include parliamentary debates, policy statements, published and unpublished studies, research reports, memoirs, professional associations' newsletters, and documents retrieved from websites of stakeholders.
- Experts include researchers in fields such as political science, history, economics, sociology, even anthropology, who work in academic institutions and in human



resources for health observatories where these exist. Also, there are journalists, such as investigative reporters, who may know the political environment well and have access to the main actors.

- Key informants include active and retired politicians and government officials; representatives of multilateral and bilateral agencies, NGOs, faith-based organizations, professional councils, unions, associations and user organizations; and educators, employers and individuals regarded as opinion leaders.

Depending on what analysts want to know, and the time and other resources available, the collection of information from informants can take various forms, from in-depth face-to-face interviews to focus group discussions or online questionnaires.

Step 3. Collect additional information needed to complement the stakeholder analysis

As they consider policy options to make the health labour market more efficient in the future, it is critical that policy- and decision-makers ensure that the proposed changes are acceptable to individual workers. In addition to traditional interview methods (online questionnaires, exit interviews, focus group discussions, key informant interviews, Delphi survey) to elicit workers' expectations and aspirations, a method more technically complex and demanding in terms of time and resources is the discrete choice experiment (DCE), a tool that can serve to identify the conditions under which future graduates or professionals already in practice would accept to work in an underserved region. It consists of a quantitative estimation of the relative importance of various factors affecting the future choice of a practice location. Different options of remuneration, working conditions, career development, or retirement age are presented to participants, who then state their preferences. This information can help design packages of incentives that correspond to the expressed preferences of workers (see Ryan et al. [23] for a step-by-step strategy for conducting a DCE).

In sum, a political economy analysis is an iterative process in which various tools can be used in parallel and thereby inform each other, as when a literature review helps identify and characterize key informants, and interviews with key informants lead to additional relevant documents.

Step 4. Synthesize the information collected

The results of the stakeholder mapping and of the complementary collection of information can be synthesized and presented in a matrix format for easy reading. **Table 4.4** gives an example.



Table 4.4 Synthesized results of the stakeholder analysis

Stakeholder	Involvement in the issue	Interest in the issue	Influence, power	Position	Impact of issue on actor
Stakeholder 1	From active role to observer	High, medium high, medium, medium low, low	High, medium high, medium, medium low, low	Supportive, opposed, neutral, indifferent or not interested (specify if there is scope for a change of position)	High, medium high, medium, medium low, low

Source: Adapted from Varvasovszky and Brugha [24].

In synthesizing the information collected, analysts can highlight convergence and divergence of views. The synthesis should always remain factual, as its objective is to present interested parties with a picture of the reality of the stakeholders' views on a policy issue. Analysts can also identify the implications of the findings for the feasibility of a policy option. They may also suggest ways of addressing the concerns and even resistance of some stakeholders, if any, to eventually bring them to change their position. For example, this may include suggesting changes to the proposed policy or trying to engage some non-mobilized actors to strengthen support.

Step 5. Prepare a report and communicate the results of the political economy analysis

The communication of the results should be timely and in a format and language adapted to the target audience. It may also require strategically reporting politically sensitive problems that the political economy analysis identified, such as the existence of corruption, clientelism, informal payments, absenteeism due to dual practice, ghost workers, violence, or discrimination and gender issues. If the conclusions of an HLMA, as informed by a political economy analysis, are not accepted by stakeholders, in particular those with more power to influence policy decisions, resistance will follow and may become an obstacle to the adoption and eventual implementation of an intervention. A process of engaging with stakeholders and involving them in the validation of the information is important. This can be done by establishing working groups, including stakeholders, to take part in the HLMA and the political economy analysis, developing a communications strategy linking the HLMA to national health objectives (for example publishing policy briefs), and holding consultations on drafts of the situation analysis [25].



Conducting policy dialogues is a good strategy to bring together the various stakeholders in an enabling environment in which trustworthy and legitimate speakers present results of an HLMA and discuss policy options in a non-prescriptive way. Participants from the various sectors affected are invited to discuss relevant matters in a meeting, preferably not exceeding one day and a half, held behind closed doors under the Chatham House Rule to guarantee that everyone can speak freely, as no attribution of statements will be made to a specific speaker [26]. WHO has a tradition of using this mechanism to promote the debate on health policy change [14, 27, 28].

4.4 Conclusion

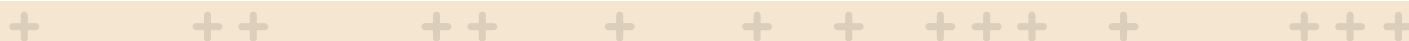
In sum, a political economy analysis serves to assess the acceptability of policy options by stakeholders.

For policy-makers and planners in health, paying attention to the political dynamics of the health labour market is therefore essential. By ignoring them, they run the risk of launching interventions that will meet resistance and fail to be implemented as desired, and impact negatively the performance of the health workforce. Poor policy decisions in relation to the health labour market have long-term effects and can be difficult to reverse. A condition of success of a policy is the early involvement of stakeholders through consultative processes, and continuing contact and information sharing. This way political economy analysis can be an important component of an HLMA that informs the policy process and can make it more pragmatic and feasible. A well documented HLMA, supported by a rigorous and timely political economy analysis, can help policy-makers and planners in the design, adoption and implementation of better-informed policy options.



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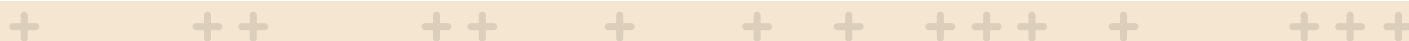
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Module 5

Macroeconomic factors shaping the health employment sector

Summary

This module provides guidance on how to identify and analyse key macroeconomic factors that affect health workforce development and notably job creation in the health sector.

- First, the module indicates how to analyse the health sector from an employment perspective and compare it with other sectors.
- Second, it shows how to examine the composition of health spending patterns by public, private and external sources, and their influence on the funding capacity to increase investment in the health workforce.
- Third, it provides insight on how fiscal constraints, budget prioritization and spending efficiency affect investments in the health workforce.
- Finally, indicators and data sources are presented.

5.1 Introduction

The shaping of the health workforce is influenced both by characteristics of the health labour market – internal factors – and by key factors outside the health sector. The upper panel of **Figure 5.1** illustrates elements outside the health sector, such as economic, social and demographic aspects, that affect the education sector and employment in the health sector. For example, changes in the structure of the population, its rate of growth, fertility and mortality rates, and life expectancy all impact the design of health services, in turn influencing the demand for health workers. Demand for health care increases gradually due to the effects of population growth and people living longer. An older population increases the demand for treatments such as cataract surgery and hip and knee replacement operations, as well as the demand for long-term care, which in turn impacts demand for relevant specialties and skills.

A lower proportion of young people reduces the pool of students available for entry to health-related areas of education and eventually the pool of future health workers. Another example

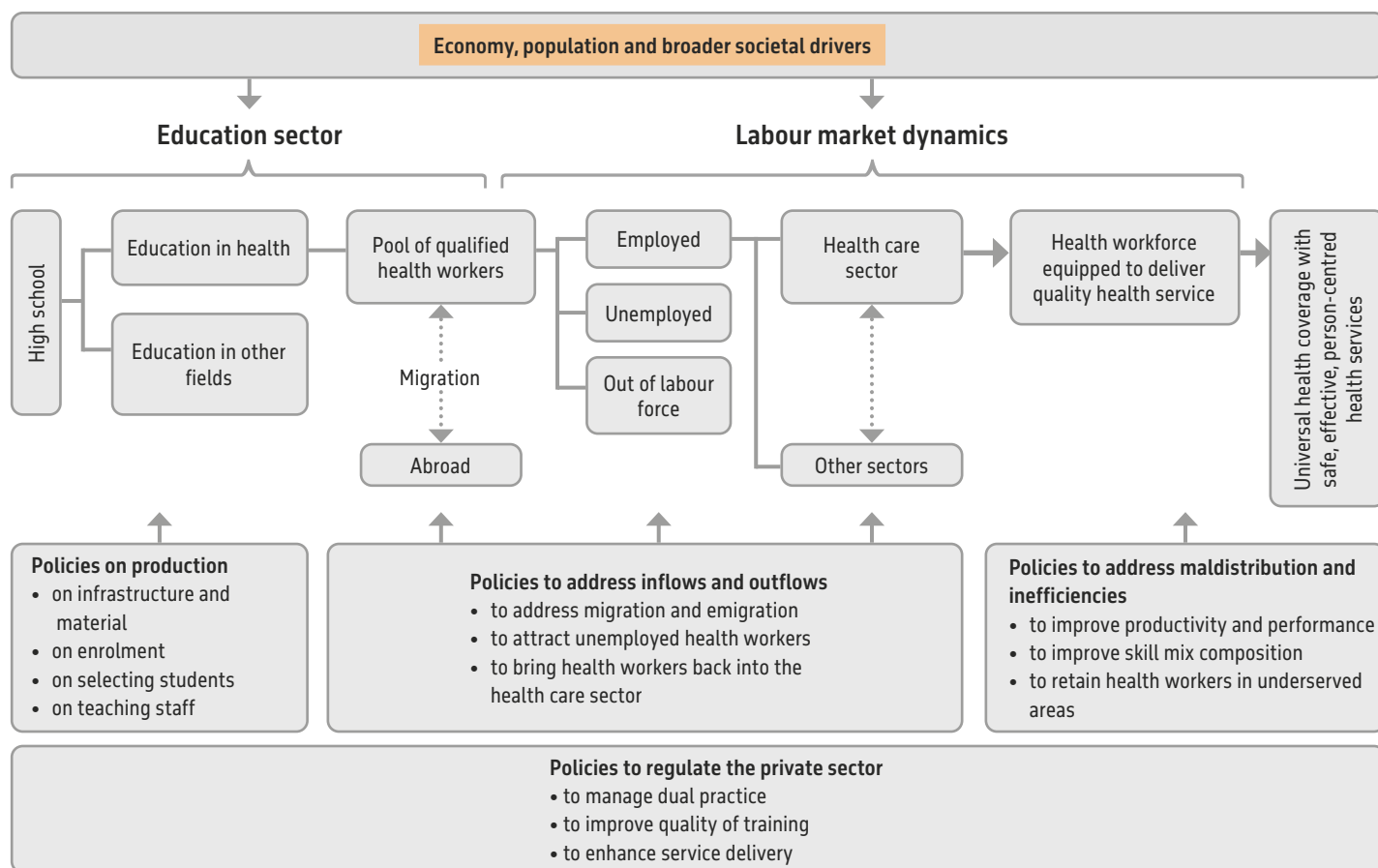


of an external factor impacting the health labour market is the emigration of qualified health workers.

Specific macroeconomic factors such as fiscal policies (wage bill ceilings), health spending patterns and budget allocations affect a country's capacity to fund the health workforce. The impact of these macroeconomic factors on investment in human resources for health varies depending on the policy objective that is affected, and its impact on the education sector or employment in the health sector. For instance, training more health workers (supply side of the health labour market) and maintaining or increasing posts (demand side) are investments that rely on a country's funding capacity, budget distribution among sectors and efficiency of public spending on health. Incorporating key factors outside the health sector into the analysis of the health labour market improves human resources for health policy development.

Also, the dynamics of the overall labour market and the interactions among economic sectors will affect the health labour market. The extent of the effects varies depending on the specificities of the health sector and interactions with the overall labour market. Career opportunities and working conditions in other sectors also impact health sector employment.

Figure 5.1 Macro labour interactions in the health sector



The aim of this module is to provide guidance on how to better understand and analyse key macroeconomic issues that affect health workforce development and notably job creation in the health sector. Potential constraints resulting from the macroeconomic situation are not always taken into consideration when analysing the health labour market and might lead to the adoption of inappropriate policies. It is therefore important for policy-makers to identify key features arising from macro labour and macro education interactions in the health sector and understand how they influence the health labour market.

One key interaction between macroeconomic factors and the health labour market is the effect of the aggregate labour market – its dynamics and characteristics – on the health and education sector. This calls for a health labour market analysis (HLMA) that identifies market failures and guides interventions. For instance, increasing training or employment of health workers depends on the willingness of individuals to participate in the labour market and specifically to engage in the health sector. Since the health sector competes with other sectors in terms of career opportunities, the features that shape this dynamic affect the pool of candidates willing to enrol in health care professions [7]. For instance, better wages or working conditions in other economic sectors may attract more young people to those sectors compared to the health sector.

A second feature is the impact that patterns in health financing have on the health labour market. Many of the policies to alter employment levels in the health sector or to improve training and skills of the health workforce require an increase of investment in human resources for health, both on the demand side (increase of positions) and on the supply side (education and training) of the health labour market. These investments can be influenced by fiscal constraints and by the sources of health expenditure (public, private or external).

Looking at health expenditure from private, public and external sources contributes to an understanding of how employment of workers in the health sector is financed and helps identify challenges in terms of current and future investments in the health workforce. For instance, in a country relying on external sources of revenue, a decrease in contributions from these sources will compromise investment in the health sector and particularly in human resources for health, since an important share of this expenditure is assigned to the health workers' payroll. Therefore, future decreases in development assistance for health will need to be compensated by increases in government domestic resource mobilization.

The participation of the government's budget in health spending and particularly in health workforce investment reflects a combination of fiscal capacity and commitment to health compared to other areas. For example, policy-makers willing to increase the supply of human resources for health by increasing the production of new health workers will need to fund investments in education and training. However, planning new investments in human



resources for health is influenced and limited by fiscal constraints, such as public budget deficit, fiscal space rules, or wage bill ceilings for public sector staff. Hence, it is important that an assessment of the expansion of fiscal space for the health workforce looks at budget prioritization and spending efficiency to create or increase fiscal space.

Understanding these issues requires analysing macroeconomic features that interact with and influence the supply of and demand for human resources for health.

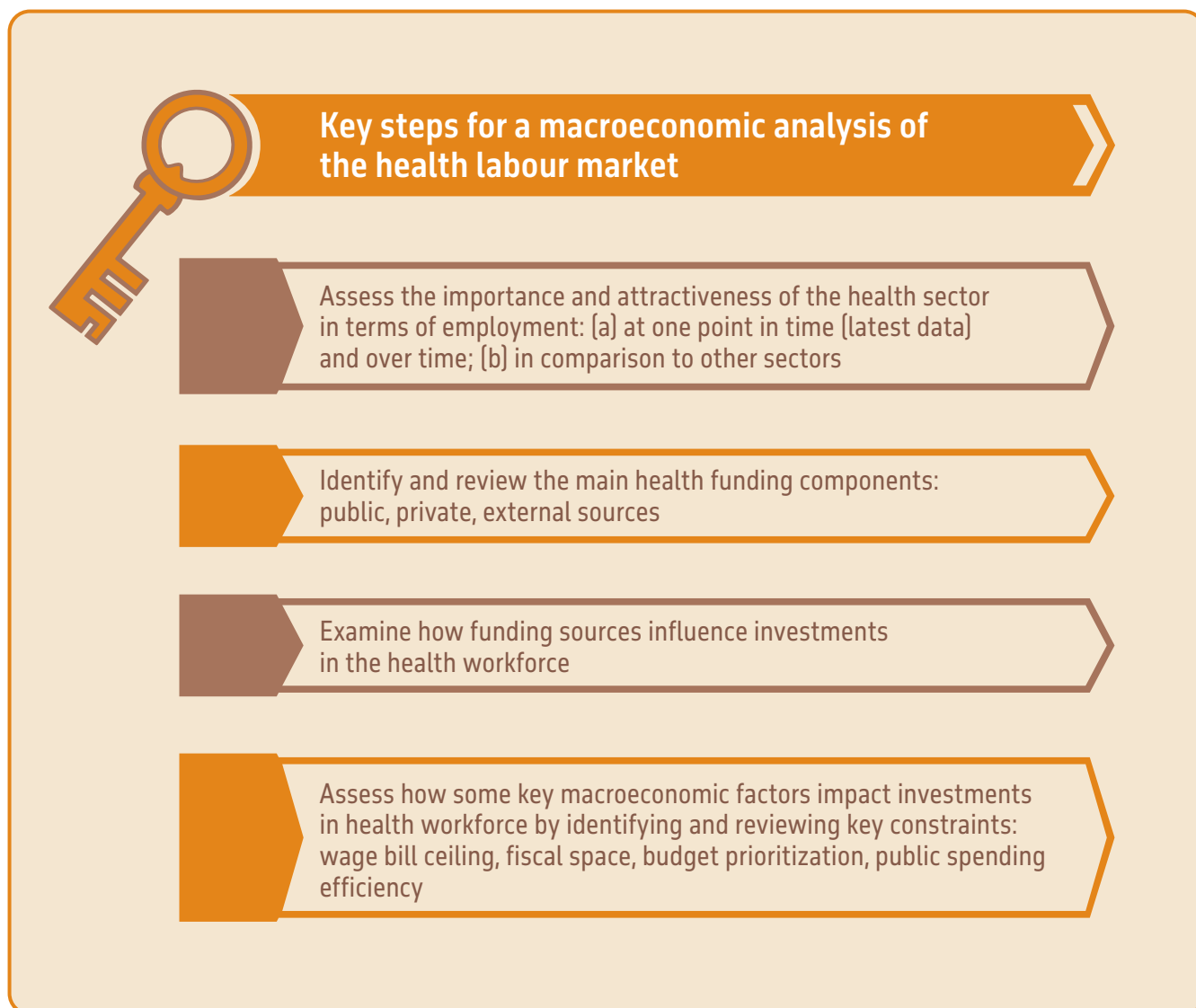
While macroeconomics covers a broad range of issues, this module will focus on a limited set of matters pertaining to the health labour market. The remainder of this module is divided into three sections:

- **Section 5.2** looks at the role of the health sector as a component of employment in a country.
- **Section 5.3** concentrates on understanding how the composition of health spending patterns by private, public and external sources influences the funding capacity of the health workforce in the public sector.
- **Section 5.4** focuses on how investments in human resources for health are influenced and limited by fiscal constraints, budget prioritization and spending efficiency.

Based on the above, key steps are presented for a macroeconomic analysis of the health labour market as illustrated in **Figure 5.2**.



Figure 5.2 Key steps for a macroeconomic analysis of the health labour market



5.2 Assessing the importance and attractiveness of the health sector in terms of employment

An increase in employment of human resources for health stimulates economic growth in several ways – by raising the value of production of goods and services in the health sector, by positively affecting the quality of health and well-being in the country [2], and by contributing to inclusive economic growth, gender equality and improved health outcomes [3, 4].



This section assesses the role of the health sector as a component of employment in a country. **Box 5.1** lists questions that can guide the analysis of this role, contributing to a better understanding of issues shaping the supply of and demand for health workers. For instance, career preferences are influenced by prevailing working conditions that can vary by economic sector, which can in turn affect the pool of candidates willing to work in health-related activities. Employment in the health sector is an important source of job creation in many countries; it is influenced by gross domestic product (GDP) growth but also by specific policy and government measures that can shape sectoral trends in employment. Assessing health sector employment as a proportion of total employment is useful to gain an understanding of the drivers of employment and to analyse their evolution over time. Comparing employment in the health sector of a country with that in similar countries helps to identify and learn from good practices in other countries. Looking at the correlation of GDP growth and health sector employment growth can help identify episodes where policy measures have impacted job creation in the health sector.

Box 5.1 Main questions to guide the analysis of the role of the health sector as a component of total employment

Relevant technical questions include:

Are jobs in the health sector growing at the same, lower or higher rate compared to other sectors? How can the labour market in the health sector be made more attractive (for future and current workers) compared to other sectors?

The following technical actions can give relevant information:

- Identify the role of the health sector as a source of employment in the country and how it evolves over time:
 - Use employment in the health sector as a proportion of total employment to assess the importance of the health sector in job creation. Compare it with other sectors in the economy and with the proportion in similar countries.
 - Assess the correlation of growth of GDP and growth of employment in the health sector by identifying episodes with different trends and associated policy and government measures.
- Compare job growth in the health sector with other sectors: in other words, are jobs in the health sector growing at the same, lower or higher rate compared to other sectors?
 - Use employment elasticity to understand how employment-intensive growth in the health sector compares to other sectors of the economy.
- Assess the attractiveness of the health sector for current and future workers in terms of decent work and employment conditions:
 - Undertake analysis of wages and other factors.

On average, workers in the health sector represent 5% of the global total workforce (average shares of all countries). This percentage varies between regions: on average, the WHO European Region shows a proportion of 8.5%, followed by the Region of the Americas with 4.8%, the Western Pacific Region with 4.4% and the African Region with 1.9%. The proportion of total



workers in the health sector has great variability within regions. In the African Region, for instance, in South Africa the proportion is 6.4%, in Benin it is 1.2% and in Cameroon it is 1.6%.⁵

Economic growth is associated with job creation, and the health sector is no exception. On average, an increase in the production of goods and services (GDP growth) also increases the demand for inputs in the production process, which in turn raises total employment. As a result, GDP growth shows a positive relation with employment growth and a negative correlation with unemployment. This pattern can vary between sectors of the economy; hence the importance of considering this factor in relation to the health sector.

Data from labour force surveys allow us to compare employment in the health sector with other sectors. For example, in South Africa the health sector is an important source of employment: it accounts for 6.4% of total employment and is the fourth sector in terms of employment generation.⁶ However, this may not include health-related jobs in other sectors (for instance, manufacturing medical products).

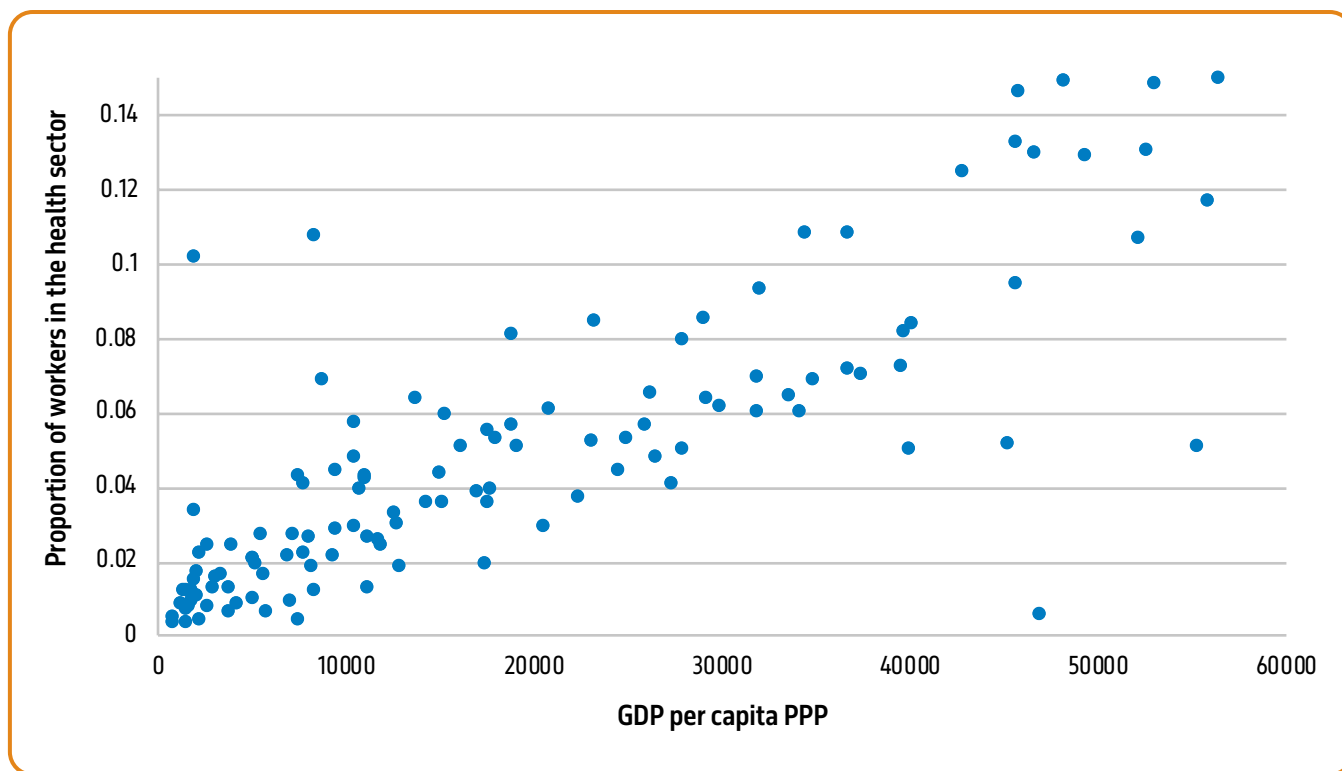
Labour force surveys are useful for looking at how the proportion of workers in the health sector varies over time. **Figure 5.3** shows a positive relation between employment in the health sector and GDP per capita in most countries.

⁵ Source: author's estimates based on labour force surveys from countries (ILOSTAT).

⁶ Source: ILO-ZAF-LFS quarterly labour force survey, 2018.



Figure 5.3 Employment in the health sector compared to GDP per capita, purchasing power parity (PPP)



Sources of data: Labour force surveys from countries (ILOSTAT) and the International Monetary Fund, World Economic Outlook Database, consulted in April 2019. Data presented are for the last year available for each country. The last year of observation in the ILOSTAT database used is 2018.

However, there are some episodes when employment in the health sector shows a different trend than GDP. One explanation is that employment in the health sector is influenced not only by GDP growth but also by specific policy and government measures that shape employment trends. For instance, a policy to implement cost-saving measures may affect employment growth in following years.



5.2.1 Comparing health sector job growth with other sectors

To assess if jobs in the health sector are growing at the same, lower or higher rate compared to other sectors, calculation of employment elasticity aids an understanding of how employment-intensive growth in the health sector compares to that in other sectors of the economy.

A knowledge of employment elasticity in the health sector in response to real GDP growth helps the analysis of how employment responds to GDP cycles (Box 5.2). This elasticity may vary for episodes when GDP is increasing, and for episodes when GDP is decreasing [5].

Box 5.2 Employment elasticity to GDP

Employment elasticity to GDP is the measure of responsiveness of demand to changes in GDP: it is measured as the proportional change in the quantity of labour demanded (ΔL) divided by the proportional change in GDP (ΔY). The elasticity of employment (η_Y) with respect to growth in GDP (Y) describes the percentage change of employment associated with a 1 percentage point change in output; it informs the extent to which economic growth has been employment intensive ($\eta_Y = \% \Delta L / \% \Delta Y$).

A change in GDP growth can affect employment in different ways: it can be reflected in job creation or destruction, job productivity or job quality. Box 5.3 presents an example of employment elasticity to GDP by economic sector in Benin and Burkina Faso.

Growth in GDP is distributed differently among economic activities. Depending on labour market dynamics and on job growth by sector, workers may have an incentive to move from jobs in the health sector to other sectors, or vice versa, as they pursue alternative opportunities in terms of better salary, working conditions or training in other sectors or countries. Worker attrition in the health sector can be tackled by improving working conditions, which has cost implications for the public and private sector.



Box 5.3 Employment elasticity with respect to GDP: employment-intensive growth in the health sector in Benin and Burkina Faso

Country studies usually compare aggregate sectors, whereby health and education are classified into “other services”. But when undertaking an HLMA, the country can estimate the specific elasticity for the health and education sectors separately.

The health, social and education sectors (included in other services) in Benin and Burkina Faso show positive elasticity, which signals employment-intensive growth. For instance, in Benin, a 1 percentage point increase in output increases employment in the health, social and education sectors by 1.92%. This means that employment in these sectors reacts more than proportionally to changes in GDP. Employment elasticity is characterized by sectoral heterogeneity: sectors such as manufacturing, commerce and mining had employment boosts and probably absorbed the employment decline in the agriculture sector.

Employment elasticity (% response to a 1 percentage point increase in output)		
	Benin (% change)	Burkina Faso (% change)
	2006–2015	2005–2014
Other services (education, health, social and others)	1.92	1.24
Agriculture	-0.37	1.06
Mining	1.96	0.21
Utilities	0.17	6.15
Manufacturing	9.55	-0.4
Construction	1.25	2.68
Commerce	2.32	1.37
Transport	0.93	0.62
Finance	0.11	-0.28
Total	0.74	0.69

Source: Haile [6].

5.2.2 Attractiveness of work in the health labour market

The health sector is in competition for workers with other sectors of the economy. The decision of an individual to work in the health sector depends on personal preferences as well as being influenced by macroeconomic factors that affect the pool of candidates entering the health labour market, including wage rigidity and relative wages, working conditions, career opportunities and demographic trends.



Career opportunities

Factors outside the health labour market, such as sources of finance for education, can affect the pool of candidates willing to enrol in the health education sector or to enter the health labour market. Education strategies are important to address mismatches in the health labour market and guarantee the stability of health systems. Sources of financing for education and rate of return to education (RORE) impact career preferences and the pool of workers willing to participate in health-related activities.

The RORE is a motivation for future students when deciding their educational choices. For example, some countries show trends towards overspecialization, which appears to be related to higher wages in some specialties [7].

Government budget allocation to education in health careers is usually decided by the ministry of education, which in principle requires coordination with the ministry of health. Public institutions have financial constraints that depend on the national budget and therefore on macroeconomic indicators. Different incentives and financing mechanisms for higher education and availability of training programmes can influence career preferences. For instance, some governments incentivize health training and careers by providing free or subsidized education. However, in some cases, countries limit the subsidy and promote the private sector to provide higher education [8]. One of the reasons for doing this in low- and middle-income countries is the lack of public funds. The privatization of health education creates other challenges, such as the development of adequate regulation to ensure quality of education and inclusive access.

Regulation also shapes the supply of health workforce by influencing the quality and supply of educational institutions. For instance, inadequate and poor enforcement of regulation can compromise quality in medical education [8]. All these factors affect health professional training and education and may limit the expansion of human resources for health. Education policies, regulation, budget and quality of primary and secondary education shape the pool of suitable candidates for higher education programmes. Module 6, on analysis of the health education market, further develops these topics.

Wage rigidity

Countries need to recognize that wage rigidity can affect the decisions of current and future workers to join the health labour market. In countries where the health system is mainly public, wages for human resources for health can be rigid due to regulations for workers in the public sector and fiscal rules. These countries face the challenge of dealing with limited budget for salaries, while trying to increase incentives that will encourage workers to join the health workforce. If other economic sectors are offering better wages, that will encourage workers to choose those sectors over the health sector, decreasing the pool of workers available to the health sector.



Relative wages

Intersectoral wage differentials can affect the supply of health workers. The HLMA should investigate differences in working conditions and dynamics of economic growth affecting the availability and distribution of workers in the health sector. Wages within the health sector can also vary. For instance, when there is low unemployment in certain cadres but high demand, then increases in wages for some specialties can be observed. This can happen when a higher level of funding is available for the same pool of health workers [9].

In countries where the public sector is the main provider of health services, wages of health professionals constitute a main component of the health budget, and price setting determines incentives for health workers [10]. In these settings, low and rigid wages can create incentives for dual practice, whereby health workers receive income from both the private and public sectors. In countries where clear regulation is in place, dual practice can complement workers' income and can be used as a mechanism to increase the supply of certain professions in underserved areas. In low- and middle-income countries, dual practice is not always regulated effectively; this results in perverse outcomes, such as increases in out-of-pocket payments for patients, leading to inequality. Another implication of dual practice, where rules are not respected, is the reduction of hours worked in public facilities, since workers have economic incentives to do more hours in private practice. This reduces the supply of health services in the public sector as well as the coverage of health services.

To choose and design effective policy interventions to address issues related to dual practice, a country could analyse its health labour market to understand health workers' engagement in private professional activities, particularly:

- the perverse outcomes from dual practice in the country, including differences in the time allocated to public and private sector activities, negatively impacting public services and inducing greater demand for private service provision;
- the factors currently and potentially affecting health workers' decisions that are related to differences in working conditions and opportunities in the private and public health sectors, including variations in wages, in type of contract (for instance, short-term contracts in the public sector), and in infrastructure and equipment.



5.3 Examining how funding sources influence investment in the health workforce

This section looks at the sources of health funding in terms of private, public and external spending. Understanding patterns in health expenditure in a country is relevant for HLMA because sources of funding have different dynamics that can shape current and future investments in human resources for health (including jobs, education and incentives).

Information on current health expenditure⁷ (including public, private and external sources) as a percentage of GDP allows an assessment of the importance of health sector spending relative to the value of production of the economy (GDP). The higher this share, the greater the role of the health sector in terms of employment generation and production of goods and services, and the greater its importance as an economic and social driver. Low levels of health spending reflect a health system that may face inequalities in coverage or access, with low quality of services. In turn, this will have consequences for investment in the health workforce, since low levels of health spending will be related to low financial resources to pay for wages and training of human resources for health. For instance, estimates based on data from 136 countries indicated that remuneration of health workers accounted for an average of 33.6% of total health expenditure, but with variations between high- and low-income groups [11].

Analysis of health spending patterns by private, public or external entities is useful to understand the financial impact on the sustainability of jobs in the health sector and to identify challenges shaping the current and future demand for health workers [Box 5.4]. Policies aiming at addressing shortages and mismatches in a health labour market may entail upgrading skills, designing incentives to mobilize workers in underserved areas, and creating jobs, all of which require increased investment. Macroeconomic factors, such as GDP growth, health spending patterns by source, and budget allocation, affect a country's capacity to fund the health workforce.

Financing the provision of health care services depends on the dynamics and characteristics of sources of funding, regulations and government priorities.

⁷ Current health expenditure is a proxy for total health expenditure, since it does not include capital health expenditure (gross fixed capital investment).



Box 5.4 Analysing how health spending patterns can shape health workforce demand

Key technical questions look at how macroeconomic features (such as GDP and health expenditure by source) influence investment in the health workforce and in health-related areas of education, and how different patterns of health financing (public, private or external) may affect implementation of human resources for health policies.

The following can give relevant information.

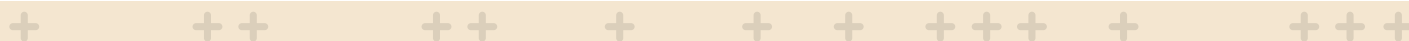
- Health expenditure trends by source provide insights into the role of public expenditure in health investment, compared to private and external (or donor) expenditure.
- Domestic public expenditure is useful to understand fiscal capacity and the government's commitment to health compared to other areas. Assessing trends in GDP can identify possible fluctuations in government revenues, enabling the design of different scenarios for GDP growth and their impact on expected government revenues and public expenditure levels for health, particularly human resources for health.
- Regarding private expenditure, if a country has higher levels of out-of-pocket expenditure, the HLMA should look at how this is evolving over time and investigate a possible relationship with dual practice.
- With regard to external expenditure, donors should be identified and an analysis undertaken as to whether they are funding human resources for health, and if there is a plan for sustainability and transition.

5.3.1 Assessing the relation between the composition of health spending patterns and human resources for health financing: public, private and external sources

Expenditure-based indicators allow separating health expenditure by source, providing insights into the role of public expenditure in health investment compared to private and external expenditure. Usually these analyses do not look at how health spending patterns affect the financing of human resources for health; this section will give initial consideration as to how to study these relations.

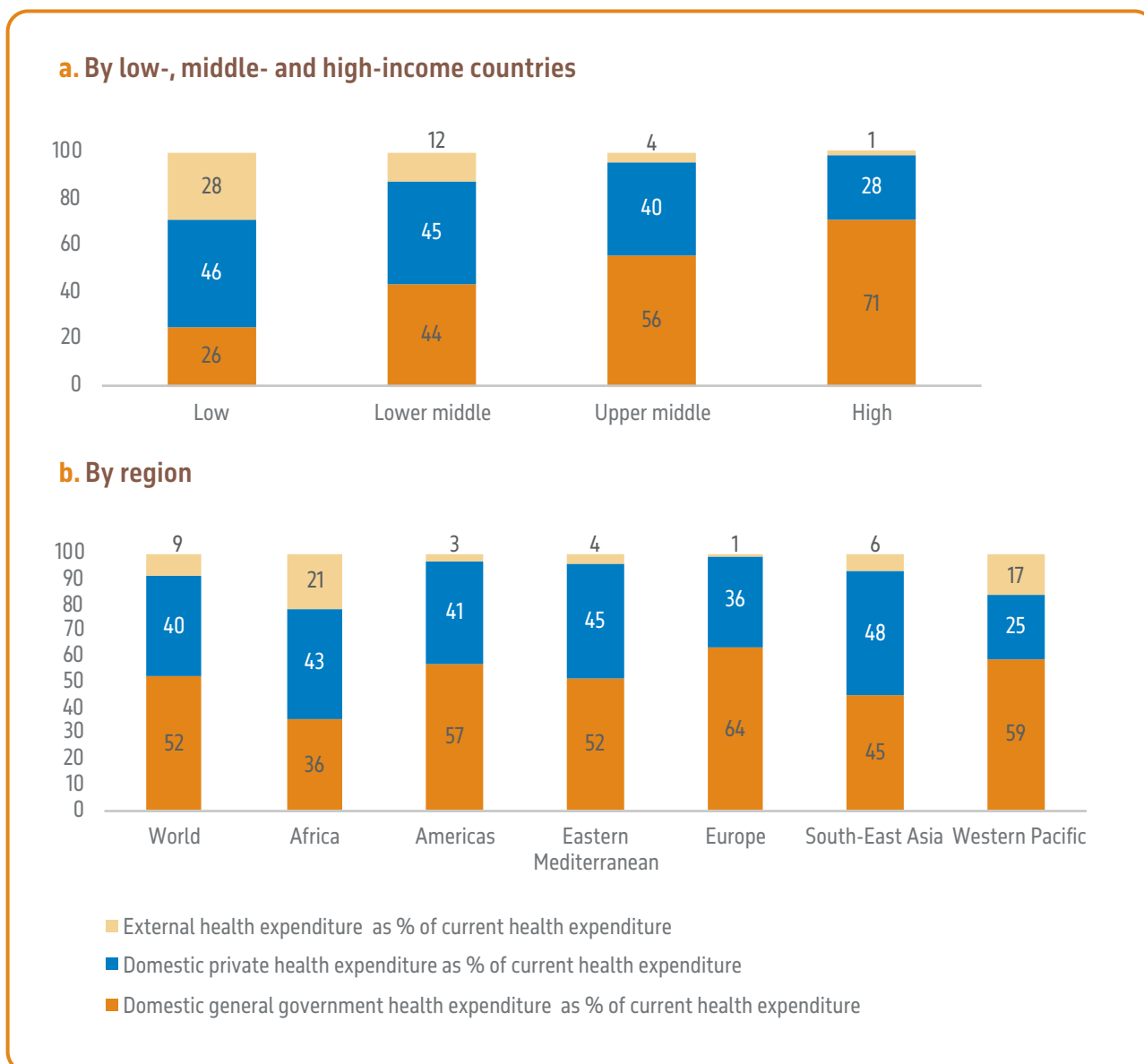
Figure 5.4(a) compares the components of health spending by country income group. It shows that the main sources of funding for health services in lower-income countries are private health expenditure (mostly out-of-pocket payments) and external financing. In middle-income countries, public sources represent around 50% of expenditure on health services, with external sources less important. This has a positive impact on health sector jobs in terms of continuity, since external sources might be more volatile, and it also provides an opportunity to build medium- and long-term strategies to address workforce issues affecting access to health services.

Figure 5.4(b) compares patterns of health spending by WHO region. In the South-East Asia and African regions, the share of domestic private expenditure is greater than for domestic public expenditure. The African Region also relies heavily on external health expenditure, which in some cases might crowd out public spending. A significant share of expenditure on human



resources for health is financed through donors, raising concerns about sustainability should the donor resource stream cease.

Figure 5.4 Components of expenditure on health services by public, private and external sources, 2016



Source: Global Health Expenditure database (<https://apps.who.int/nha/database>, accessed 10 October 2019).



Domestic public expenditure and funding for human resources for health

In many countries, additional domestic resources are critical to increase investment in the health workforce. The total volume of public resources available is important, as are the composition of spending and budget distribution. In low- and middle-income countries, health budgets are consumed mostly by salaries and other personnel-related expenses.

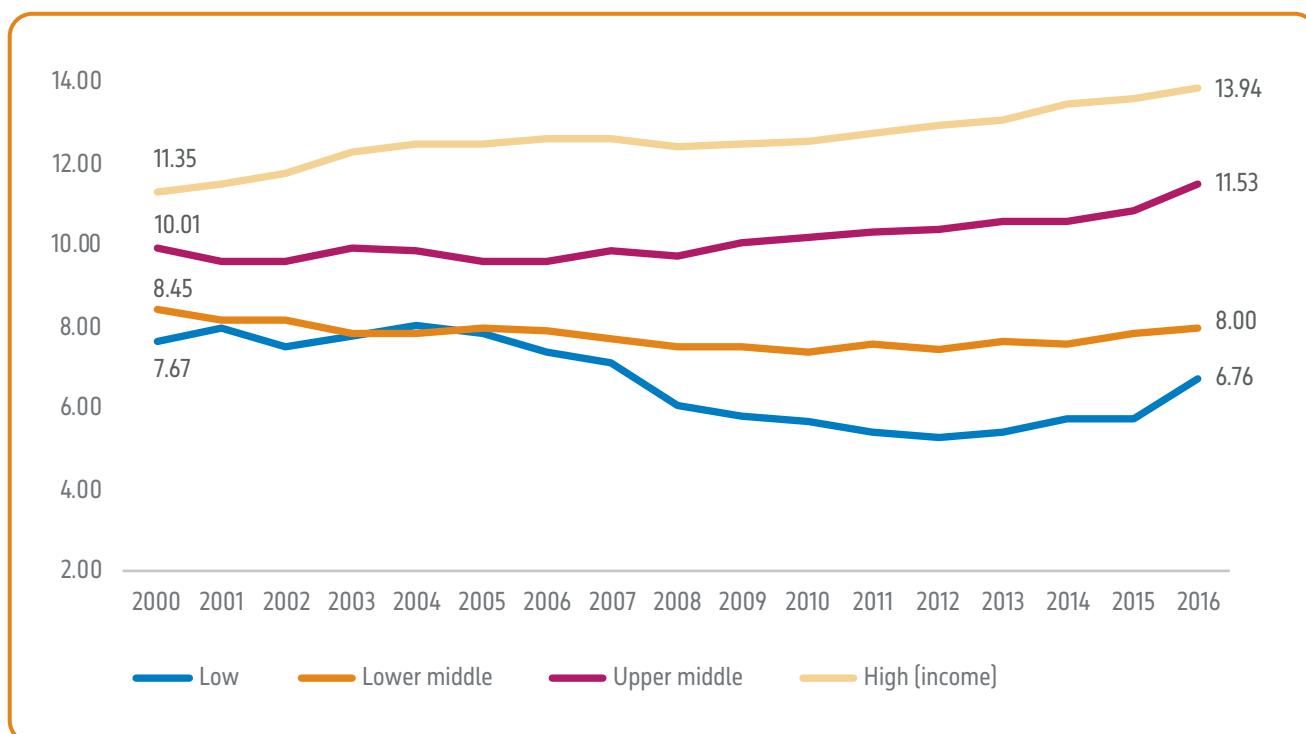
The participation of the public sector in health spending reflects a combination of fiscal capacity and the government's commitment to health [12]. Even though public investment in the health sector faces fiscal constraints, increasing expenditure on health is a political decision. Increases in government revenue raises its fiscal capacity, but the health sector may not benefit in proportion if countries see the health sector as a cost but not as a revenue centre. Health spending patterns may vary between countries with regard to the priority given to health services. In low- and middle-income countries, public spending on health as a percentage of general government expenditure decreased between 2000 and 2016 (Figure 5.5).

Higher levels of GDP are usually associated with increased government revenues from tax collection and social contributions. Increases in GDP growth above a certain level can facilitate transition of a country from a low-income to a middle-income classification, limiting access to development assistance, grants, loans and other revenue streams. In high- and middle-income countries, increases in public spending on health follow increases in GDP growth, but in lower-income countries, increases in GDP and public spending during the period 2000–2016 were not accompanied by higher financial allocations to health budgets [13].

By the Abuja Declaration of 2001, the African Union countries set a target of allocating 15% of each country's annual budget to health. While budget allocations in African countries subsequently improved, most countries have failed to meet the target [14].



Figure 5.5 Domestic general government health expenditure as % of general government expenditure, 2000–2016



Source: Global Health Expenditure database (<https://apps.who.int/nha/database>, accessed 10 October 2019).

Private expenditure: out-of-pocket payments

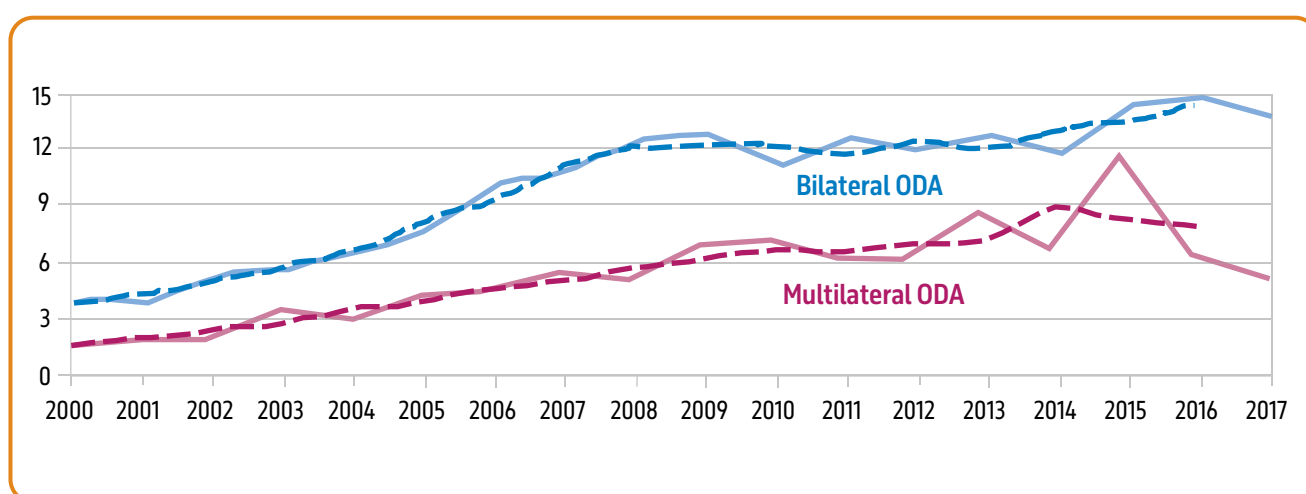
In many low- and middle-income countries, a high percentage of domestic private expenditure is in the form of out-of-pocket payments. Higher levels of out-of-pocket expenditure suggest the existence of financial risks, which can lead to impoverishment of families [15]. Also, out-of-pocket expenditure contributes to additional funding of human resources for health through informal payments in public services and use of private services.

In contexts where high levels of out-of-pocket payments to health workers are observed, and depending on national regulations, these payments can contribute to financing and increasing the demand for health workers. High percentages of household out-of-pocket spending might be associated with people attending private sector facilities due to the low quality or low coverage of public services. This leads to inequities in access to health services and financial risks for families.

External expenditure and funding of human resources for health

It is important to consider the role of external expenditure from donors, as these sources of revenue are likely to change over time, and donors might not necessary commit in the long run; indeed, external finance to developing countries shows pronounced cycles over time, and has declined in recent years (Figure 5.6).

Figure 5.6 Official development assistance to health by source (bilateral and multilateral) in developing countries⁸



Notes: Values in US\$ billion, 2016 prices and exchange rates, commitments with three-year moving averages (dotted lines).

Source: OECD [16].

5.3.2 Human resources for health financing by donors: sustainability and transition

External funding is an important source of resources for the health sector in some countries. In some cases, most of the funds are for salaries for the expansion of the health workforce; for example, the Global Fund to Fight AIDS, Tuberculosis and Malaria reported that up to 80% of funds requested for human resources for health by countries were for recurrent salary support [17].

External health expenditure as a percentage of current health expenditure varies across recipient countries. In 2016, it was 30% in Benin, 22% in Chad, 54% in Malawi, and 30% in Mali.⁹ Donors and development partners, such as the Global Fund, the United States Agency

⁸ Developing countries are defined in the study by the OECD's list of ODA eligible countries.

⁹ Source: <http://apps.who.int/nha/database/ViewData/Indicators/en>.

for International Development (USAID), the United Nations Children’s Fund (UNICEF), the Swedish International Development Cooperation Agency (Sida), the United States President’s Emergency Plan for AIDS Relief (PEPFAR), and the World Bank,¹⁰ are major funders of health service systems and workforce, and an HLMA needs to consider the scope of this funding, its sustainability, and the potential for transitioning to self-reliance.

Background information and scope of funding

Much external financing comes to low- and middle-income countries in the form of health programmes, and a significant share of the cost is to hire additional staff, pay salaries, and provide motivational benefits and training.

Many donors and organizations use criteria to provide funding, such as the country’s income classification and its burden of disease. However, as countries increase their GDP growth, they experience a decrease in external financing.

Sustainability

Usually, donor funding of human resources for health is aimed at supporting countries in the process of building and strengthening their health systems. However, external resources are not expected to be constant over time but to follow a decreasing trend as the country increases its GDP. Therefore, an important challenge is the sustainability of these investments across time. In order to progressively replace external funding of human resources for health with its own, a country needs to increase mobilization of domestic resources. This process requires consideration of a combination of factors, including sources of financing for the health system, planning and HLMA, and political will. Some organizations develop guidelines for sustainability and transition by aligning interventions with national strategic plans, ensuring that there is a financing strategy in place, and advising countries to prioritize investments in areas with long-term impact *[18]*.

Transitioning

External funding of human resources for health is often linked to specific health programmes implemented by the donor. Transitioning from external funding sources to national sources requires time and needs to be well planned. A transitioning plan should be considered at the start of a donor relationship so the country can integrate it into its budget and planning process.

¹⁰ For instance, through results-based financing approaches in the health sector to improve maternal and child health.



An initial roadmap towards transitioning includes:

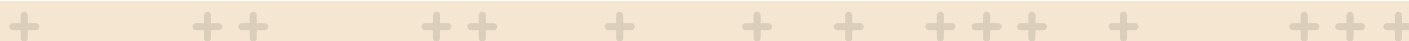
- identifying donors' funding investments in human resources for health;
- identifying and gathering information on the characteristics of the health workforce (such as number of workers and their levels of remuneration) and training programmes benefiting from external sources of funding;
- comparing the working conditions of workers hired by the public sector and those contracted directly or indirectly by the external donor or development partner;
- defining which cadres should be fully integrated into the public health workforce and in which scenarios or contexts the incentives provided to workers have been successful in improving health services;
- estimating the additional domestic budget that needs to be allocated to the health workforce, including for incentives and training, when taking over from external funding sources;
- elaborating a transitioning strategy, which includes the required additional budget distributed between different stages over several years, and opportunities to improve spending efficiency inside the health sector;
- discussing with the ministry of finance and with donors the transitioning strategy.

In this regard, the new guidance note of the Global Fund on sustainability, transition and co-financing [18] stipulates that (a) salaries supported by the Global Fund need to be in line with national salary scales; and (b) training provided by the Fund needs to be progressively institutionalized. However, in certain instances the Fund may still provide incentives to health workers in the short run, arguing that they might be "necessary for successful delivery of disease programmes in the short term". Examples of these incentives are travel and accommodation expenses [19].

Potential responses to key challenges for sustainability and transitioning of human resources for health financed by donors include [20]:¹¹

- defining positions that should be integrated in the public health system;
- because integration cannot take place in a single budget year, planning for the transition over several years;
- addressing differences in working conditions between the health workforce funded by national or external sources, ensuring that salaries funded by donors are in line with those offered in the national health labour market;
- identifying the training needed to improve workers' skills and develop strategies to institutionalize the different programmes;

¹¹ Alternative external financing models for sustainability of global health programmes also relevant for human resources for health investments: Ottersen et al. [20].



- adapting fiscal policies limiting increases in the budget for human resources for health to transitioning from external funding sources to national sources, and discussing reprioritization inside the health sector and opportunities to improve spending efficiency.

5.4 Assessing how macroeconomic factors impact investment in the health workforce

Accounting for macrofiscal realities contributes to dialogue on financing, which is needed to attain financial sustainability in the health sector and to support investment in the health workforce. Public deficit, public debt, fiscal space rules, and wage bill ceilings for the public sector should be considered when conducting an HLMA. This section focuses on wage bill ceilings, fiscal space, budget prioritization, and public spending efficiency, and aims at providing key insights on how these factors affect investments targeting the quantity and quality of the health workforce.

Box 5.5 sets out the main considerations to be taken into account when assessing how fiscal constraints influence investment in human resources for health.

Box 5.5 Assessing how fiscal constraints influence human resources for health: main considerations

Key technical questions include:

- What are the main constraints limiting the expansion of public health expenditure on human resources for health?
- Is there fiscal space to fund more job positions and training of the health workforce?
- What are the policy options to create or increase fiscal space for health and therefore investment in the health workforce, through domestic sources?

The following technical actions can provide relevant information.

- **Fiscal constraints:** identify key fiscal constraints that can influence hiring new health workers or improving working conditions. Consider, for example, fiscal space and wage bill ceilings.
- Discuss ways of overcoming challenges within fiscal constraints to increase the capacity of spending on human resources for health through budget prioritization and spending efficiency.
- **Budget prioritization:** results from the HLMA provide evidence that contributes to the advocacy efforts within government to scale up investment. These results can be included in the technical preparation of the health sector for budget negotiations.
- **Public spending efficiency:** if spending inefficiencies persist, then a higher allocation of funds will not necessarily mean better outcomes. Performance-based approaches can contribute to the health financing dialogue, since investment efficiency in human resources for health can be affected by how well these are managed.



5.4.1 Impact of wage bill ceilings on health workforce investment

Wage bill ceilings, as part of austerity measures, affect public expenditure on the health workforce. The International Monetary Fund and the World Bank have lent funds to countries conditional on fiscal measures, including quantitative ceilings or floors on government expenditures on wages, social spending and public investment.

Wage bill ceilings are an important constraint to investment in the public sector health workforce in countries where most health care professionals are government employees. For instance, International Monetary Fund conditionalities have reduced the fiscal space for health expenditure in some African countries and limited the hiring of new health workers [21]. As salaries of doctors and nurses represent a significant proportion of public health expenditure in lower-income countries, limits on government spending on wages drive these expenditures downwards.

In some cases, countries try to replace public with private financing, often from donor sources [22], to avoid wage bill ceilings. This changes health spending patterns; for instance, external financing may be used to cover health workforce salaries to avoid increasing the wage bill in the public sector, though this poses challenges for sustainability, since these sources might diminish in time.

These ceilings can affect the quality of health services by imposing constraints on hiring or retaining health workers. For instance, increased investment in the health workforce in countries of the West African Economic and Monetary Union (WAEMU)¹² is needed to address imbalances in the geographical distribution of health workers, the lack of absorption of workers in the health labour market, and inadequate performance-based incentives. However, an increase in expenditure on health workers would have a negative impact on the International Monetary Fund convergence criteria, such as bringing wage bills within 35% of domestic revenue, one of the five criteria of convergence. Even though several countries are not achieving all of the criteria [Table 5.1], the International Monetary Fund encourages the WAEMU Commission to increase efforts to achieve the criteria.

Within the context of a wage bill ceiling, a country needs to identify areas where the ministry of health can improve spending efficiency, for instance by cleaning the payroll register to ensure it reflects current staff and eliminates ghost workers. In addition, the ministry needs to make the case for a higher share of the overall wage bill resources in its negotiations with the ministry of finance.

¹² Covers eight countries: Benin, Burkina Faso, Côte d'Ivoire, Guinea-Bissau, Mali, Niger, Senegal and Togo.



Table 5.1 WAEMU: number of countries not respecting convergence criteria, 2015–2022

	2015	2016	2017	2018	2019	2020	2021	2022
	Estimates			Projections				
First-order criteria								
Overall balance/GDP ($\geq -3\%$)	5	8	5	6	1	1	0	0
Average consumer price inflation ($\leq 3\%$)	0	0	0	0	0	0	0	0
Total debt/GDP ($\leq 70\%$)	1	1	1	1	0	0	0	0
Second-order criteria								
Wages and salaries/tax revenue ($\leq 35\%$)	6	6	6	6	5	5	4	4
Tax revenue/GDP ($\geq 20\%$)	8	7	7	7	7	7	7	7

Sources: WAEMU; BCEAO; and IMF staff estimates and projections.

5.4.2 Fiscal space for health and for the health workforce

Fiscal space can be defined as “the capacity of government to provide additional budgetary resources for a desired purpose without any prejudice to the sustainability of a government’s financial position” [23]. An updated definition and assessment strategy of fiscal space refers to the “room for undertaking discretionary fiscal policy relative to existing plans without undermining fiscal sustainability” [24].

Conceptually, fiscal space for health can be assessed by looking at the following five pillars: (a) conducive macroeconomic conditions, (b) reprioritization of health within the government budget, (c) increase in health sector-specific resources, (d) health sector-specific grants and foreign aid, and (e) an increase in the efficiency of the existing government health budget [23, 25]. Fiscal space analysis can contribute to policy dialogue on health workforce financing inside the ministry of health and with other ministries by increasing understanding of the barriers and challenges to mobilizing additional budgetary allocations and identifying potential alternative drivers for the expansion of health workforce employment and education spending.

HLMA results can be used to support investments in the health workforce inside the ministry, but also as part of a strategy of the ministry of health to advocate an increase in the fiscal space for health.



Increasing human resources for health requires financial resources to pay the costs of their employment, including wages and benefits, and the cost of education and training of future and current health workers. Knowledge of the fiscal situation of the country is likely to contribute to the interministerial dialogue on prioritization of resources and investment in human resources for health. Usually, the discussion on fiscal space is focused on increasing budget, but driving the discussion towards addressing distortions in the health workforce can help to improve the financing dialogue. This type of analysis is needed in a scenario where the HLMA identifies shortages and suggests increasing investment in the education of health-related professions.

When an assessment of fiscal space is needed, the main technical question is: What are the policy options to create or increase fiscal space for health, and how can this be related to increases in investment in human resources for health through domestic sources? Assessments recommending additional investments in the health workforce need to look at the factors influencing public revenue, trends in expenditure sources, and other possibilities for increasing the share of financial resources allocated to human resources for health in the health budget through budget prioritization and greater spending efficiency.

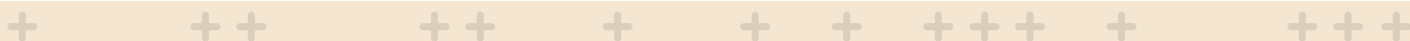
From the public revenue side, the discussion includes tax collection efforts, which increases public revenues, and earmarking of certain revenues. Moreover, the capacity to mobilize additional public resources also depends on the macroeconomic conditions.¹³ Although fiscal interventions are a core part of policy dialogue, new views on macro labour market links could be included in the discussion. For instance, investment in more and better jobs to improve the provision of health services will also increase payroll taxes and therefore contribute to increased public revenues to finance the health system.

Looking at the public expenditure side, budget prioritization and spending efficiency of the resources invested compared to other allocations within the sector are key issues that can influence the mobilization of additional available resources for human resources for health.

5.4.3 Budget prioritization

An increase in investment in human resources for health would depend on the distribution of the public budget among different economic sectors and within the health sector. Specific budget allocation to the health workforce is linked to the allocation to the health sector, which depends on national policy priorities and is in competition for additional public resources with other sectors, such as education, infrastructure and the environment. Moreover, the expansion of domestic fiscal space for health depends on macroeconomic conditions and budget

¹³ A medium-term expenditure framework contains projections based on macroeconomic factors and, if available, is useful for analysing future needs.



prioritization [25–27]. Recent estimates of budget disaggregation suggest that most of the expansion (70%) is driven by growth of government revenues, and 30% comes from budget prioritization [28]. A proactive, results-based approach to budget negotiations may have a positive impact on budget prioritization of health. Results of an HLMA provide evidence that contributes to the advocacy efforts to scale up investments by making the case that investing in more qualified health workers, and highlighting their contribution to increased coverage of primary health care and delivery of better health services, stimulates development and reduces inequalities.

5.4.4 Public spending efficiency

Health budget execution rates affect investments in human resources for health. A ministry of health showing poor budget execution needs to look at improvements in the efficiency of public spending on health. These can contribute to freeing potential resources within the sector. Many countries have difficulties spending the allocated funds, which constitutes a significant fiscal loss for the sector [14]. For example, efficiency in spending is hampered by delays in releasing budgets, long hiring processes for new health workers in the public sector, unplanned projects, and difficulties with the procurement of health service equipment. When inefficiencies prevail, greater allocation of funds does not necessarily mean better outcomes. A mismatch between policy and budget allocation may cause health budget underspending. Health budgets need to be aligned with the priorities of the sector and national plans, hence the importance of involving health authorities in the process of elaboration of the national budget.

Performance-based approaches can contribute to the health financing dialogue, since investment efficiency in human resources for health can be affected by how well human resources are managed [29]. This complements discussion on the efficiency of spending on human resources for health, since it can be seen as an opportunity to consider the quantity and quality of their work. Since civil service rules can be a constraint on offering incentives for good work or sanction poor performance, in some cases performance-based financing could contribute to holding government accountable and the inclusion of these issues in the financing dialogue. However, performance-based financing also has its limitations. In their review of performance-based financing programmes, Paul et al. [30] found that too little care is given to systemwide and long-term effects, so that performance-based financing can actually damage health services and systems. In addition, performance-based financing should be very country specific, and should not be applied in a standard way across countries.

Finally, accounting for the time dimension is important, since assessments should be coordinated so that they are ready before the budget process in the country is discussed (including midterm expenditure frameworks). This will provide entry points for the ministry of health to impact allocation decisions more effectively [26].



5.5 Indicators for health sector employment and funding sources

Table 5.2 presents indicators for section 5.2 above, on assessing the importance and attractiveness of the health sector in terms of employment, while **Table 5.3** provide sets of indicators for section 5.3, which examines how funding sources influence investment in the health workforce.

Table 5.2 Indicators: health sector employment (section 5.2)

Indicators	Description
Economically active population	The labour force is the sum of the number of persons employed and the number of persons unemployed.
Unemployment rate Number of persons who are unemployed as a percentage of the labour force (economically active population)	Persons in unemployment or the unemployed population are all those of working age who were not in employment, carried out activities to seek employment in a recent period, and were currently available to take up employment in the reference period.
Proportion of human resources for health to total employment	Employment by economic activity provides information on the relative importance of different economic activities regarding employment. For the health sector, employment in the health sector is calculated as a proportion of total employment.

Source: ILOSTAT, consulted October 2019.



Table 5.3 Indicators: influence of funding sources on investment in the health workforce (section 5.3)

Indicators	Description
<p>Current health expenditure (CHE) $CHE = \text{domestic health expenditure (DOM)} + \text{external health expenditure (EXT)}$ $CHE = (GGHE + PVT) + EXT$, where GGHE = general government health expenditure and PVT = private health expenditure</p>	<p>Final consumption of health care goods and services while excluding investment, exports and intermediate consumption. It includes public expenditures on government schemes, voluntary schemes, out-of-pocket spending, external health expenditure, and other expenditures not elsewhere classified.</p>
<p>Current health expenditure as % of gross domestic product (GDP) CHE/GDP</p>	<p>This indicates the level of health system expenditure within a country relative to the output of the whole country. It shows the importance of the health sector in the economy. Also, it indicates the societal priority given to health, since the indicator provides information on the level of resources channelled to health, relative to other uses in the overall economy.</p>
<p>Domestic general government health expenditure (GGHE) as % of general government expenditure (GGE) $GGHE/GGE$</p>	<p>Expressing domestic general government health expenditure as a share of general government expenditure is important to assess the size of current public health expenditure relative to total government expenditure.</p>
<p>Private health expenditure (PVT) as % of current health expenditure (CHE)</p>	<p>Share of domestic private expenditure on health as percentage of total current health expenditure. Private expenditure can be prepaid through a voluntary health insurance or paid directly to health care providers. This indicator describes the role of the private sector in funding health care compared to public or external sources.</p>
<p>Domestic general government health expenditure (GGHE) as % of current health expenditure (CHE)</p>	<p>Share of current health expenditure funded from general government sources, social health insurance and compulsory prepayment, as percentage of total current health expenditure. It indicates the proportion of resources the public sector is devoting to health. This indicator does not include capital health expenditure.</p>
<p>External health expenditure (EXT) as % of current health expenditure (CHE)</p>	<p>Share of external sources spent on health as a percentage of overall current health expenditure. External sources include donor financial assistance to health, distributed by government and consumed within the country during a specific year.</p>

Source: Global Health Expenditure Database [31].



5.6 Conclusion

Identifying key macroeconomic issues that affect health workforce development and job creation in the health sector contributes to improved policy formulation and implementation. Three main elements influence the health labour market and the health professional education sector: the interactions of the health sector with other sectors in the labour market, health spending patterns, and fiscal constraints.

First, the characteristics and dynamics of the overall labour market in a country influence the availability and pool of health workers. In particular, better working conditions or career opportunities in other sectors and wage rigidities in the health sector can negatively affect the availability of health workers. GDP growth can positively impact job creation. The employment elasticity to GDP is useful to assess how employment intensive growth is in the health sector compared to other sectors.

Second, this module discussed how health spending patterns by public, private and external sources can influence investment in the health workforce. External sources may not be constant over time, and therefore reliance on development assistance poses challenges for the current and future financing of human resources for health. In countries where the public sector is the main employer of health workers, three challenges were identified: (a) budget constraints that limit investments in human resources for health; (b) low and rigid wages that can create incentives for dual practice, whereby health workers receive income from both the private and public sectors; and (c) regulation.

Third, fiscal constraints, budget prioritization and spending efficiency limit investment in human resources for health. Fiscal constraints such as fiscal space rules or wage bill ceilings for public sector staff limit the investment needed in human resources for health. Policy options to increase the fiscal space for health are budget prioritization and spending efficiency.

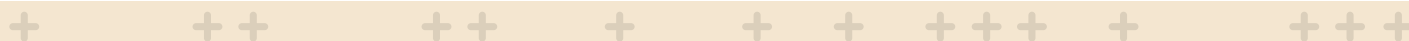


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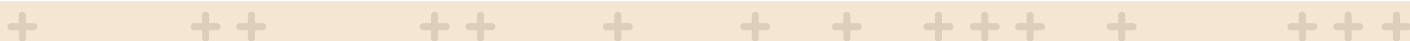
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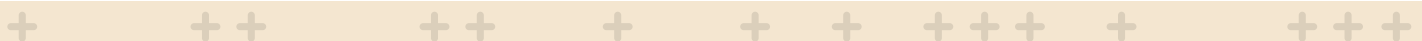
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Module 6

Analysis of the health education market

Summary

This module first introduces the importance of analysing the market for health worker education and key concepts.

It then highlights some policy challenges and identifies factors that influence health worker education markets and how these, in turn, influence the health labour market. Demand for education is linked to the financial and other returns determined by the conditions in the health labour market; hence the need to measure the rate of return to education [RORE].

Then, key steps for an analysis of the health workforce education market are:

- identify key stakeholders in health education and their roles
- assess the attractiveness of health professions
- assess production capacity
- review trends in the production of health workers
- provide an overview of production efficiency.

6.1 Introduction

This module first introduces the importance of analysing the market for health worker education; it then identifies factors that influence health worker education markets and how these, in turn, influence the health labour market. A third section reviews some of the policy challenges that the relationship between the two markets raise and identifies options of interventions to address them. The final section outlines some approaches to the analysis of health worker education markets.

The module focuses on cadres who are specifically educated to enter the health labour market. Other workers are not restricted to the health labour market, such as accountants,



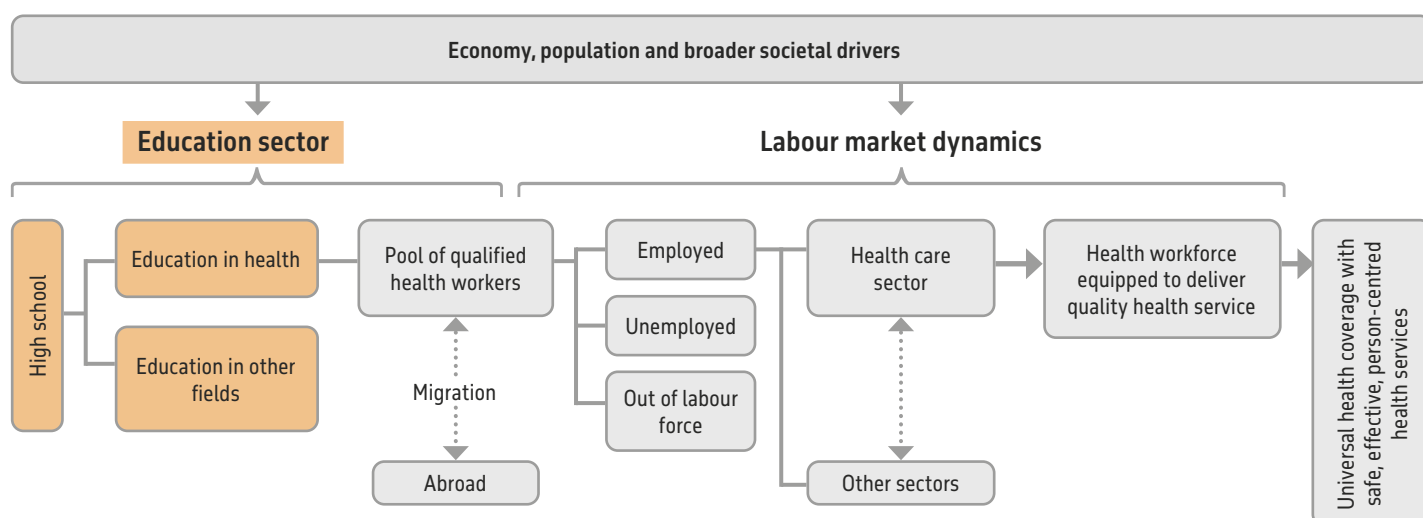
engineers, managers, computer specialists, and less qualified workers – secretaries, cleaners, and orderlies, while essential to the functioning of health services, are employable in multiple sectors. More general labour market analysis and evidence applies to their situation [1, 2].

6.2 Why analyse the health worker education market and key concepts

The processes by which candidates for health worker studies are selected, are educated and then enter the workforce are important determinants of the number of workers produced and, in turn, of the functioning of a health service system. Most governments recognize the importance of these processes and heavily subsidize health worker education. If only for that reason, it is important to know how these financial resources are used and whether they generate the expected result, namely a fit-for-purpose workforce that produces the services that the population needs [3].

A background paper to the WHO Global Strategy on Human Resources for Health: Workforce 2030 estimates that an indicative threshold of 4.45 doctors, nurses and midwives per 1000 population is required to provide basic universal health coverage [4]. In many countries, the lack of investment in health worker education is a primary barrier to building a health workforce adequate to meet universal health coverage goals [5]. Analyses of national health worker education systems as a critical component of an HLMA, as depicted in Figure 6.1, are needed to increase the efficiency of health services and their responsiveness to current and future health priorities [6]. Analysis of the health worker education market can help to identify trends, causes and possible solutions for labour market imbalances.

Figure 6.1 Health labour market framework



6.2.1 Health worker education: supply and demand and their determinants

The supply of and demand for health worker education constitute a market that has a strong impact on the health labour market, and consequently on the performance of the health services system itself. Supply corresponds to the number of places in basic education and specialty training programmes. The supply of places depends on two major groups of factors:

- Public and private investments in physical infrastructures, faculty salaries and benefits, classroom and clinical training settings, equipment and maintenance, loans and scholarships to students, and other inputs. For instance, the availability of faculty will depend on competitive wages and on terms and conditions of employment relative to those for service delivery.
- Decisions of government and other regulatory bodies, such as professional councils and accreditation agencies, that define the rules of the provision of education and training [7]. In some countries, the number of admissions to basic education programmes is determined by these bodies and may vary across time. In Morocco, in public institutions, this is done by the Ministry of Higher Education for medical, dental and pharmaceutical studies, and by the Ministry of Health for nursing and other professions; in private institutions, it is up to each one to decide how many they will admit. In Portugal and in a number of other countries, the maximum number of places [numerus clausus] is set by councils and reviewed periodically.

Investments and decisions affecting supply are in principle based on public interest and social benefits [social rates of return on health worker education, see [Box 6.1](#)] and on service needs, though a number of other factors influence them:

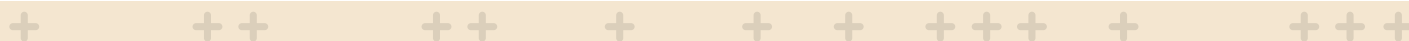
- The country's economic capacity and priorities.
- Pressures from health worker trade unions and scientific associations for more or fewer places in educational institutions in order to expand or limit their market niche. The period of training and the number of training places are usually determined by training facilities and faculty, generally in consultation with or under the direction of associations of specialists. The longer periods of training are a barrier to entry into specialist training [8]. To the extent that such associations act as labour unions, they have incentives to restrict supply and increase the market power of their members. This is often in conflict with population needs and an equitable geographical distribution of health workers.
- Pressures from other interest groups, such as patients' organizations demanding more workers of a certain kind to attend to the specific needs of their members.
- Lobbying from private sector groups for the right to enter the market, often supported by parents who ask for greater access to lucrative and prestigious occupations for their children.



- The prospect of additional revenues by creating places for foreign students, who are often charged higher fees than nationals. Countries such as the Czech Republic, Hungary, Romania and Slovakia offer programmes in English (and French in Romania) to attract foreigners [9]. Similarly, in the Caribbean, more than 30 for-profit “international medical schools” mostly admit students from Canada and the United States of America [10].
- Political gains from responding to demands from powerful stakeholders or from the public in general.

Demand is driven both by students seeking health worker qualifications and by secondary demand stimulated by governments increasing or limiting the number of training places, and any accompanying policies such as grants. As with supply, demand for health worker education is expected to align with demand for health workers, as derived from the demand for health services. Also, as in the case of supply, demand for health worker education is influenced by a number of factors not related to population or service needs.

- **Prestige.** The perceived prestige of a profession causes a systematically larger demand for some areas of education (such as medicine), while making it lower in others (such as some paramedical occupations). Failing to get access to a medical (or other) education programme in their country, an increasing number of candidates go abroad to study in institutions offering programmes for foreign students.
- **Altruistic factors.** Individuals may choose a profession because of the expected satisfaction in caring for people and assisting them to improve their health. In the health sector, the satisfaction in caring for people and assisting them to improve their health is an important argument often used to attract new enrollees.
- **Family tradition.** Some individuals choose to take ahead the family legacy by pursuing health-related studies.
- **Facilitators of and barriers to access.** Barriers include costs both to the student and to institutions, academic performance requirements for admission, and enrolment limits in pregraduate programmes or in internship and postgraduate training positions in hospitals [11]. This factor could also include a perceived barrier in the form of legal implications, where one profession (medicine) seems more susceptible to lawsuits for malpractice by patients than others (such as nursing).
- **Private rate of return to education (RORE).** The demand for training to qualify as a health worker is linked to the (private) financial and other returns, such as worker satisfaction, prestige, and social recognition, determined by the conditions in the health labour market. The interest of potential trainees will be increased by positive market conditions such as high wages and good terms and conditions of employment [Box 6.1].



Box 6.1 Rate of return to education (RORE)

The rate of return to education (RORE) corresponds to goods and services that flow over time in response to an educational investment [12]. Private RORE corresponds to the extent to which investment in education is profitable in financial or other terms to the individual, whereas social RORE is the extent to which investment in education is profitable in financial or other terms to society.

Private RORE is determined by the private cost of education, and the value of future private returns. The choice to enter health worker education and the decision to follow a subsequent career path (such as a specialty) are influenced by factors such as the cost and length of pre-service education, debt burden, expected lifetime earnings, non-pecuniary benefits of employment such as status or valued social contribution, and years of deferred income [13]. Non-pecuniary returns include social and lifestyle factors, opportunities for career development and work conditions [14, 15].

Social RORE is defined by the balance of the costs and benefits to the whole of society of the investment made in health worker education. These are the public investment and the opportunity costs to society of the trainee's use of time in acquiring the worker qualification. This might be lost productivity in the formal economy or could be lost value in roles such as caring outside the formal economy. Social RORE also includes the value to society of the flow of health services that become available when the health worker starts to practice. The value might be in higher quality or in a larger volume of services.

Most research on RORE of medical education has focused on the returns in different specialties. Earnings of specialists are higher than those of primary care physicians, especially where private practice is the dominant model. Specialty choice is a key issue in many countries where there is an imbalance between the number of specialists and primary care physicians. Studies show that although earnings do play a role in specialty choice, so do other factors such as cost of education, including fees for selection and assessments for entry, length of study and training, debt, location of practice, and flexibility of working hours [12, 16].

6.2.2 Social context and health worker education markets

Markets are ultimately social structures and are shaped by the institutions, politics and culture in which they operate. Hence, the market for health worker education is often gendered as shown in Module 9. In many countries, medicine was mainly a male occupation until a few decades ago, and now women are more numerous than men in the younger age groups. Nursing has traditionally been a female occupation and has remained so to this day. This has further implications for the health labour market. For example, the feminization of the medical labour force has reduced the preference for specialization, as many women favour the greater flexibility of working hours associated with roles in primary care [12]. In other countries, there remain cultural barriers to entry to some health occupations by women.

Institutional factors also shape important components of health worker education markets. For example, the structures and agencies responsible for accreditation, regulation of health worker education and licensing of health workers are important influences. Governments frequently divide the roles and responsibilities of educating and training health workers between ministries of health and ministries of education, and the lack of effective coordination between them plays a critical role in the outcomes for the health workforce supply line. A



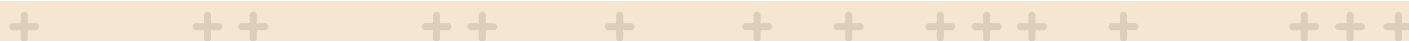
study showed that there was often a diversity of legal entities responsible for the oversight of medical education (ministries of health, of education, even of defence, medical councils, accreditation bodies), even within a single country [17].

6.3 Health worker education market: policy challenges and interrelationship with the health labour market

6.3.1 Supply and demand issues

As both supply and demand are shaped by forces other than population and service needs, imbalances or mismatches consequently occur. Typical examples are as follows.

- Supply of places in education programmes is insufficient to meet demand. In most countries, the number of applicants to medical studies is higher than the number of places available, making access very competitive. The process of selecting candidates varies from country to country, ranging from reliance on academic records or entry exams, to various methods of assessing personal skills and attitudes [18]. Studies to become a dentist or a pharmacist also tend to attract a demand higher than the number of places, even where the market does not absorb all graduates. The lack of places in highly demanded programmes brings candidates to look for education opportunities in other countries. An insufficient number of health worker education places can be due to capacity factors, such as a lack of infrastructure for basic education and clinical training, or difficulty in recruiting teaching staff.
- The number of applicants may fluctuate due to demographic changes, for example fewer individuals in the pool of potential candidates in many high-income countries, or changes in conditions of access, such as when access to funded places in nursing was reduced in England in 2017 [19]. Applicant numbers can be insufficient to fill all the places available in some education programmes. This can be due to a lack of attractiveness (low private ROPE) of a profession or of a specialty (family practice, geriatrics, psychiatry and others in medicine), or to a lack of eligible candidates. For example, around 2007 in Rwanda, the Faculty of Pharmacy in Kigali was unable to fill its 30 places available for lack of candidates meeting the admission criteria [20].
- Supply is not efficient when education programmes produce a mix of workers that does not constitute a productive workforce. This is the case in countries that produce more specialists than primary care physicians who can address the majority of health needs [21].
- Supply may correspond to demand, but not to needs, when education programmes do not produce the right kind of workers because of mismatches between the competencies they develop and those needed. The “best” education is often perceived by students, employers, and society more broadly to be one that develops the skills valued in the

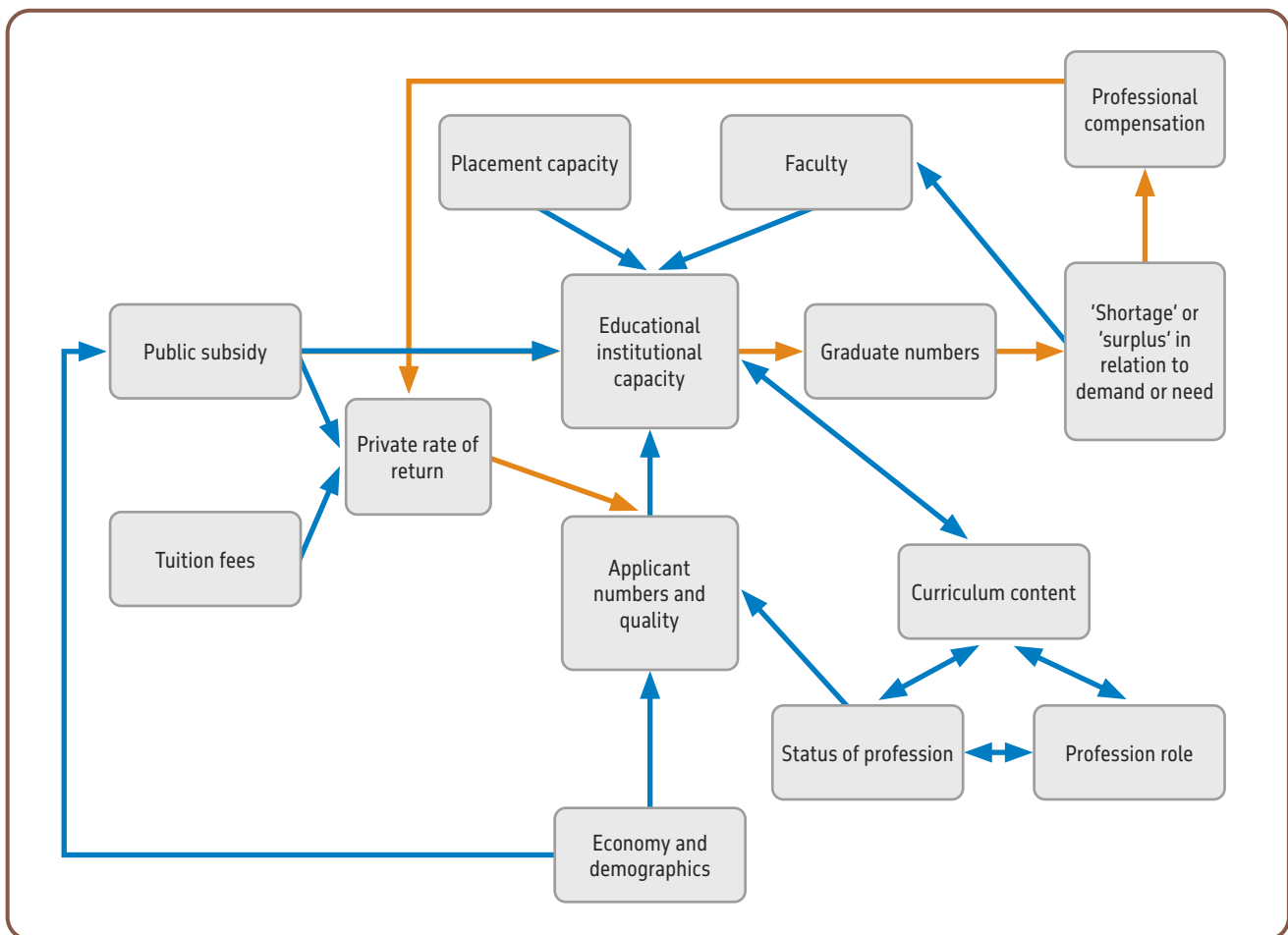


market (generating the highest private financial returns), as opposed to one based on population needs [12]. Another potential source of mismatch is the trend to standardize competencies among countries of a region, even globally. Educating for the acquisition of standard competencies may not fit the specific needs of a population [22].

Health worker education market inefficiencies, or market failures, impact the health labour market, as the two markets are closely linked in a complex web of interrelationships [12, 23].

Figure 6.2 illustrates the main links between the health worker education market and the health labour market. Orange arrows indicate the core demand and supply elements and links between the two markets. Blue arrows indicate additional secondary factors influencing the health worker education market and in turn the health labour market.

Figure 6.2 Web of interrelationships between health worker job market and health worker education market



Source: McPake et al. [12].



These interrelationships have numerous impacts. For example, if the total financial cost of educating a health worker declines, or if the budget for education increases, the potential number of health worker education places increases. Tuition fees and other related costs also affect the demand for education. If the total financial cost of education for individuals is minimal, as when health worker education is heavily subsidized, demand is likely to be higher. If tuition fees are higher relative to expected wages, then demand will be lower; if wages increase, demand for health worker education will also increase relative to other education for occupations that offer lower wages [7].

Educating too few health workers can lead to shortages of certain cadres, which will take years to eliminate. On the other hand, training too many, relative to the country's capacity of absorption, leads to unemployment or underemployment, and in the worst cases results in workers leaving the health sector or emigrating. There are situations where shortages cohabit with surpluses: this paradox is explained by the failure to match the supply of and demand for health workers. For instance, several African countries (for example Kenya, Mali and Senegal) are experiencing acute underemployment among doctors and nurses, yet they are simultaneously investing substantial public funds in producing more health workers. These examples highlight the inadequacy of a health workforce policy focused exclusively on the needs-based production of health workers [21].

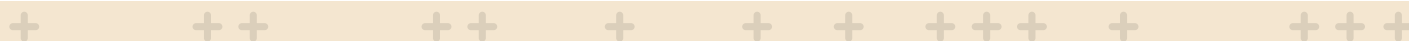
In a word, poor planning of the supply and contents of health worker education can lead to imbalances in the skills mix in the health labour market, in terms of the mix of occupations and of alignment of competencies with the needs of services.

6.3.2 Policy issues

The challenge that educators and policy-makers face can be summarized as follows: how many health workers should the country produce, of what kind, and with what competencies? These questions point to several policy issues.

- **How can future requirements for education places be defined in quantitative terms?**

There are no standards or benchmarks that can be used to answer this question. Each country must decide which services it plans to make available in 5–10 years' time, how they will be organized (for example, whether primary care services will be a priority, or home care will be developed), who will provide them (for example, how the division of labour and scopes of practice will evolve), and how many of each occupational group should be produced taking into account demographic trends of the health workforce, estimates of flows of foreign-trained workers, and changes in the behaviour of future workers in terms of time devoted to work.



- **Which competencies?** Demographical and epidemiological changes (ageing of populations and increasing burden of noncommunicable diseases), technological developments (automation and digitalization, e-health, mHealth, telemedicine, precision medicine and other biomedical innovations, big data and analytics), new organizational approaches (integrated care, people-centred and team care approaches), and political changes (commitment to universal health coverage) require health worker education to adapt the contents of programmes and educational strategies [24–26]. Again, each country needs to provide its own answers to ensure that its educational institutions produce health workers adapted to local conditions.
- **How can candidates to the programmes that correspond to future requirements be attracted and retained?** Current private and social ROREs are poor guides to future ones if the structure and scope of health worker education undergo significant change. Future students will seek programmes that offer a high private RORE in the changed health labour market, and programmes that fail to adapt will empty. Strategies of recruitment and selection of students need to be adjusted.
- **Which institutions should be responsible for health workforce production?** Traditionally, health worker education has been provided by public institutions and by some private not-for-profit ones, in many cases run by religious organizations. This pattern has changed considerably in the last two to three decades, particularly in low- and middle-income countries where the number of private schools has exploded, many of them profit oriented and dependent on tuition fees [12]. Private health worker education institutions tend to offer staff higher remuneration, which attracts staff from the less remunerative public institutions, causing or exacerbating quality problems in the public education system. **Box 6.2** gives examples of the expansion of the provision of health worker education by private institutions.





Box 6.2 Expansion of the provision of health worker education by private institutions

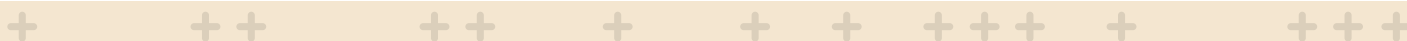
Increasing global demand for health worker education has prompted a rise in the number of private medical and nursing schools in Asia, South America, North America, Africa, the Middle East, Australia and Europe. More than half of medical schools are now private in Bangladesh, Japan, Nepal, Pakistan and the Republic of Korea. In the Middle East, most countries have either wholly or mainly privatized medical education. In India, student places in public medical schools grew by 20% between 1970 and 2004, and almost 900% in private ones during the same period.

Public sector budget constraints for medical education offer one explanation for private sector growth. The demand for education in internationally tradable health worker skills may also explain the growth of private for-profit health worker education. The increase in privatization is also happening in the education of nurses, for example in India, Kenya, South Africa and Thailand. For example, in the state of Kerala (India) in 2016 there were 287 nursing institutions, of which 255 (89%) were private. The demand for qualifications from private schools, especially in nursing, has strong financial drivers. For women from lower-income backgrounds, nursing provides employment opportunities outside their home country, where incomes provide them with financial gains in addressing traditional expectations associated with marriage, dowry and supporting their families. Nurse emigration is actively supported by some countries, such as Nepal and the Philippines.

Sources: Scheffler et al. [6], Ball [27], Mahal and Mohanan [28], Shehnaz [29], Adhikari [30], Rao, Rao et al. [31], Ananthakrishnan and Shanthi [32], Reynolds et al. [33], Armstrong and Rispel [34], Scheffler and Dal Poz [35], Rao, Bhatnagar et al. [36].

- **How can the quality of the health worker education be maintained and improved?**
Relevant questions relate to the extent to which health worker education should be regulated; what should be regulated, for example the degree of autonomy of health worker education institutions, the content of programmes, the qualifications of educators, the infrastructure (including facilities, equipment, and clinical training sites), tuition fees, or the quality of teaching; and, who should regulate what – government, councils, or accreditation bodies. The literature suggests that in many countries, existing regulation fails to control the expansion of private health worker education and to ensure quality (it may also fail to do so in the public sector) due to capacity and governance shortfalls [12].

A comprehensive HLMA that covers the functioning of the health worker education market can help policy-makers, regulators and educators in identifying barriers to efficiency and quality and in considering options to overcome them.



6.4 Key steps in an analysis of the health worker education market

Analyses of the health worker education market aim to provide a locally relevant understanding of the factors that are shaping the efficiency of the market and their implications for the health labour market.

Factors such as availability of data and differences in education systems and practices affect analyses and generic advice about how to conduct a health worker education market study, which therefore needs to be adapted to the specificities of the context. In all cases, the interaction of the supply and demand sides of the market needs to be investigated. Policy questions such as the following cannot be adequately answered without an understanding of market forces.

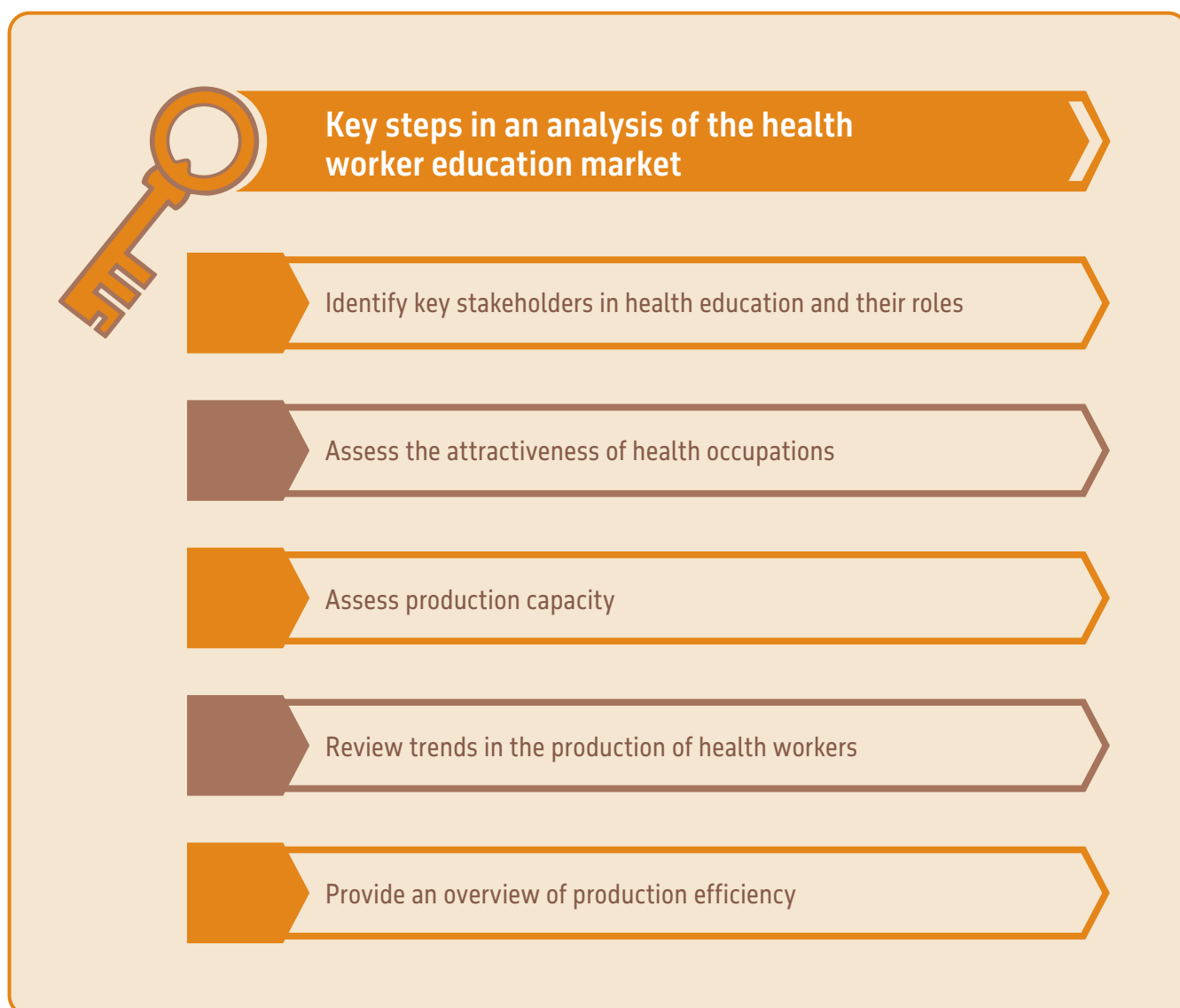
- Do we need more education places?
- What types of health workers are needed, with what levels of responsibility?
- Where will they be educated?
- Which curricula and pedagogical approaches will be required?
- How much will this cost?
- Which combination of public and private institutions can produce the right number of cadres and skills (but who determines what private institutions produce as they respond to different market forces than the public sector)?

These questions cannot be answered in isolation. For example, it is common to ask the question: how many nurses should we educate? The answer depends on the gap between the need and the current supply, on the capacity of production (physical, funding, faculty), and on the capacity of absorption of the market. It also depends on the number of other workers with whom they are expected to work and the role they will play in the provision of services. Corollary questions have to be asked simultaneously about the attraction and selection of students and about the length and content of the programmes.

To receive rational answers, all questions require an understanding of the linked markets – health worker education market, health labour market and health services – for the appropriate set of policies to be designed. What follows is a set of key steps towards analysing the health worker education market, as depicted in [Figure 6.3](#).

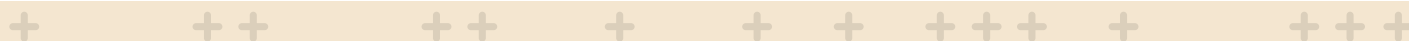


Figure 6.3 Key steps for an analysis of the health worker education market



6.4.1 Identify key stakeholders in health education and their roles

Different stakeholders influence decisions affecting health education: government and other regulatory bodies, such as professional councils and accreditation agencies, but also trade unions, scientific associations, private sector groups, patients' or students' organizations and others. Module 4, on political economy analysis, explains how to conduct a stakeholder analysis.



6.4.2 Assess the attractiveness of health occupations

This is important especially if policy-makers plan to increase production. If policy-makers decide to invest in additional education places, for example for nurses, the investment will be wasted if there is insufficient demand to fill those places.

Different approaches can be adopted to assess the attractiveness of health occupations, such as estimating the number of applicants per seat, using surveys or seeking the opinion of key informants. Elements related to the attractiveness of health occupation are also discussed from a macroeconomic perspective in Module 5. **Table 6.1** provides an example of variations in the number of applicants per available seat in different paramedical training programmes in Togo.

Table 6.1 Paramedical training programmes in Togo: applications and available seats

Training programmes		Applications (2014/2015)	Available places for 1st year (2014/2015)	Number of applicants per avail- able seat
Paramedical				
State health officers		267	20	13.4
Certified nurses	Lomé National School for Paramedics (ENAM)	2112	100	21.1
	Kara National School for Paramedics (ENAM)	856	50	17.1
	Afagnan St John of God's Private Nursing School	7	20	0.4
Certified nursing assistants	Sokodé National School for Health Assistants (ENAS)	1201	50	24.0
	Afagnan St John of God's Private Nursing School	3	20	0.2
Certified midwives	Lomé National School of Midwifery (ENSF)	976	50	19.5
	Kara National School of Midwifery (ENSF)	584	30	19.5
Licensed auxiliary midwives	Sokodé National School for Health Assistants (ENAS)	840	50	16.8
	Afagnan St John of God's Private Nursing School	NA	NA	NA

NA = not available.

Source: HLMA Togo, 2017.



The availability of these data over a time period provides information on trends and can give insights on how easy or not it would be to increase domestic production. An understanding of the level of demand for health worker education and the factors that increase or reduce this demand is also important to enable an assessment of whether investment in scaling up will have the desired results. Demand for health worker education analysis can be conducted in relation to pre-service training or to a choice taken to develop a new specialization mid-career.

Data would be needed on the attitudes of individuals before entering health worker education and later at various stages of their career. For example, a survey of nurses' career plans can be conducted to assess what education model would be most attractive and what nurses would be willing to "pay" (potentially financially but also in terms of time and effort) to undertake that training.

Discrete choice experiment (DCE) is a useful methodology to estimate the relative values of a range of attributes of alternative job choices [37]. Studies showed that non-pecuniary incentives are significant determinants, sometimes more powerful than financial ones, emphasizing the importance of investigating the preferences of different subgroups of health workers, as preferences may vary according to the specific characteristics of each group [38, 39].

The advantage of DCEs in comparison to traditional questionnaires is that they provide evidence related to other job characteristics and their relative values. The negative side is that they require technical expertise and financial resources that are not always available. Estimating private or social RORE will also provide information about the attractiveness of health occupations.

Pay and RORE analysis

Health workforce policy needs to take account of how those whose behaviour it seeks to change are going to respond. Both demand for places in education programmes and a willingness to enter the health labour market, specifically those parts of the market where needs are greatest, will be significantly influenced by expected private RORE. Public investment should in principle be shaped by social RORE.

RORE analysis seeks to measure the balance between the costs and benefits of pursuing alternative careers. **Table 6.2** lists and illustrates the components of a comprehensive RORE analysis.



Table 6.2 Components of a comprehensive RORE analysis

Private RORE		Social RORE		
Financial	Cost	Benefit	Cost	Benefit
	Tuition fees Foregone income during studies Data: budgets of educational institutions; contribution of student fees, scholarships	Income from health worker work Data: salaries, wages, other benefits (allowances, bonuses)	Public investment in health worker education institutions Data: budgets of health worker education institutions' contribution of public finance	Increased tax revenues from a healthier population Data: model estimating the cost of ill-health to the tax base
Non-pecuniary	Value of time out of the labour market that an individual takes to study Data: earnings from unskilled labour (or associated with the prior level of skill before training)	Status associated with entering the chosen profession Data: qualitative accounts of perceptions of status; DCE could be used to quantify the value of status	Social value of the lost labour of those who are studying Data: under certain circumstances may equate to the private value of the lost labour	Value of health care that the health worker delivers Data: epidemiological model of impact of different kinds of service delivery on burden of disease, value of DALY/ QALY estimates

DALY = disability-adjusted life-year; QALY = quality-adjusted life-year.

Different types of data to estimate the quantitative dimension of RORE (benefits/costs) include:

- pay (salaries, wages, pensions and benefits such as bonuses and allowances);
- public expenditure on health worker education;
- private expenditure (fees and associated costs) on health worker education;
- foregone income when undergoing health worker education;
- measures of health outcomes responding to more available or higher-quality health care;
- estimates of tax income associated with a healthier workforce.

It is tempting to privilege quantified information, but important elements of the needed calculations may not easily be quantifiable. Difficult-to-quantify elements of calculations include:

- the value to the health worker of contributing to someone's better health and to greater societal good;
- the status associated with being a health worker;
- the value of improved health to the individual or society.



The significance of these factors in decision-making can be estimated in qualitative terms, and the DCE methodology offers an approach for translating qualitative factors into numerical values.

The easiest RORE to estimate is the private financial return, as all elements are quantifiable and most data are relatively accessible. Social RORE involves consideration of intangible elements such as the value of better health; it can best be considered qualitatively. This is also the case for non-financial elements of private RORE, such as job satisfaction, higher status in the community and social benefits gained by contributing to improving health.

There are several constraints to these analyses that are more pronounced in low- and middle-income countries. First, wage and salary data are particularly complex, typically comprising more elements in the form of allowances and bonuses than in high-income countries, and elements that may not be documented in existing databases. Second, returns to health-related work in low- and middle-income countries often have significant informal elements. There may be high degrees of informal direct payment or dual practice, for example, that are challenging to measure [40, 41]. Informal or "under-the-counter" payments represent a significant share of income from health worker practice in some settings. This is unlikely to be measured in routine systems, although there may be survey data that estimate costs of using health facilities from which estimates of informal payments might be derived. To understand how engaging in dual practice or asking for informal fees influences RORE, some primary data collection will be required. In sum, there are multiple options for mixed methods tools for data collection to conduct health worker education analysis. However, the choice of methods will depend on what one is trying to understand in a specific country context.

6.4.3 Assess production capacity

In most countries, the national production of health workers plays a key role in building the workforce and influencing health labour market outcomes. Assessing the production capacity is therefore a critical element. Key elements to consider will vary according to the specificities of the analysis, but information related to the following elements will be important to include:

- number of funded seats
- faculty–student ratios, faculty vacancies
- capacity for clinical training.

It is also important to identify the production capacity of the private sector (see Module 10 on analysing the health workforce in the private sector for more information on education and the private sector).



6.4.4 Review trends in the production of health workers

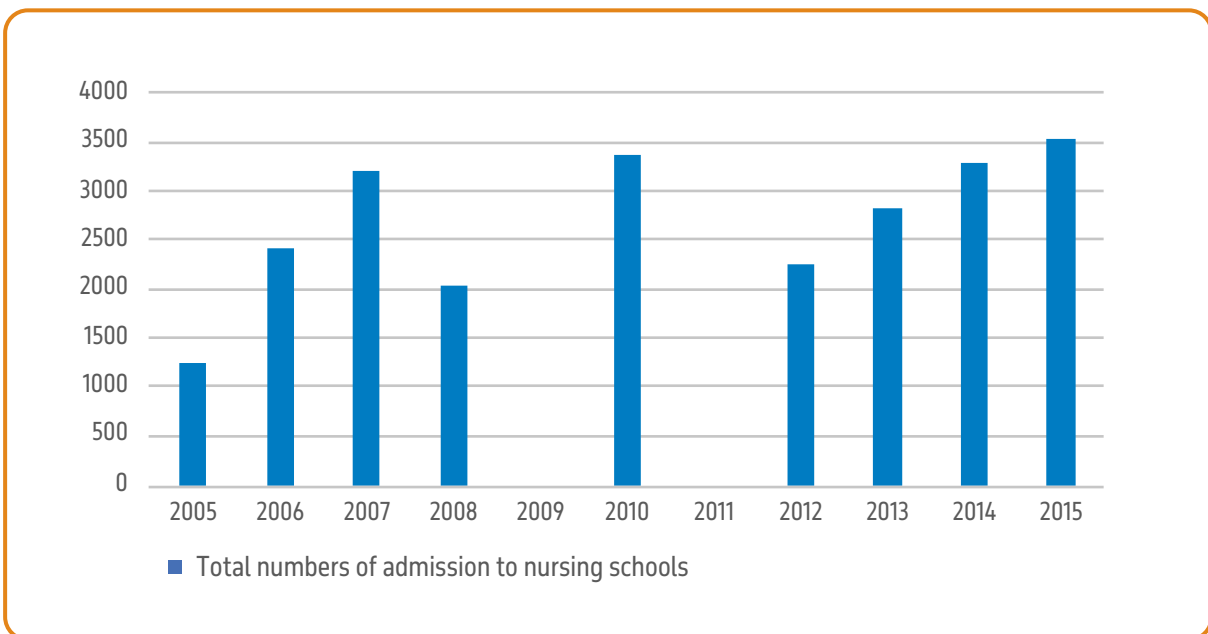
Identifying and highlighting trends in the production of health workers is important, as they impact the health labour market. Key elements to consider will vary according to the specificities of the analysis, but information related to the following elements will be important to include:

- yearly number of first-year admissions
- yearly number of graduates.

For each element, depending on the policy issues to analyse and subject to data availability, subanalyses will bring useful information, such as analysis by gender, age, nationality or public/private sector.

In Sri Lanka, data on admission to publicly funded nursing programmes show that admission can be volatile. Recruitment into nurse training programmes is not always done on an annual basis; some years have therefore seen no recruitment (Figure 6.4). This is important to identify, as it is likely to have an impact on the health labour market for nursing, notably in terms of recruitment and deployment.

Figure 6.4 Annual admissions for nursing degrees in Sri Lanka, 2005–2015



Source: Ministry of Health, Nutrition and Indigenous Medicine, Sri Lanka, and World Health Organization (42).



6.4.5 Provide an overview of production efficiency

Undertaking a comprehensive efficiency analysis of the health worker education market is beyond the scope of this guidebook. However, some useful elements can be examined in order to have a better idea of efficiency issues related to the production of health workers.

A first element is the attrition rate; high attrition rates of students can entail substantial costs and affect the future dynamics of the labour market. A second element is the average number of years needed to graduate, and the percentage of graduates who complete the programme in the prescribed number of months or years. If it takes much longer than expected, for example due to strikes of faculty or students or change of curriculum, that will adversely impact the production of health workers. Comparing cost per graduate student across different disciplines can also provide information about potential efficiency issues.

A more in-depth analysis can be undertaken to better understand the relationship between the number and characteristics of existing health facilities, including their physical structures, staffing levels and funding, and their capacity to produce additional health workers at the same level of quality.

The relevant relationship, termed the production function, is that between inputs and outputs in the production of health workers. Analysis of that relationship assesses the efficiency of the existing system and the extent to which available infrastructure could support higher output, and calculates the level of investment required to achieve that.

Data needed include:

- number of educational institutions relevant to the cadres under study;
- number of full-time equivalent staff and their costs (faculty, support workers, managers);
- number of students;
- capital and recurrent costs, such as books, computers, and other clinical equipment.

Data envelopment analysis, a type of frontier analysis, is an approach to assess the production function and analyse joint products such as pre-service and continuing education **[Box 6.3]**. A joint product involves a single production process producing two or more outputs – in this case the same staff and facilities producing pre-service and continuing education, potentially with shared classes, library facilities and other training components.



Box 6.3 Frontier analysis

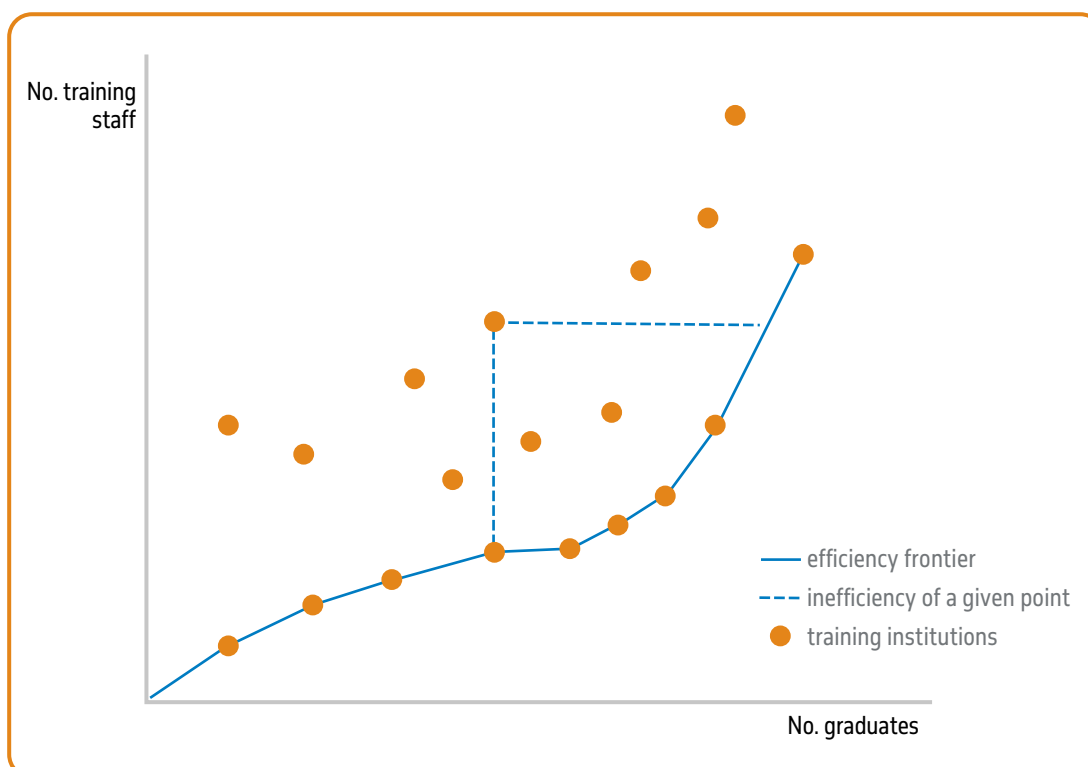
One approach to estimating the production function is frontier analysis. Frontier analysis identifies the outward boundary of a set of data points (shown in two dimensions in Figure 6.5). The frontier is the curve along which different types of input are substituted, for example more staff for the number of training places. The frontier is interpreted as the production function – the set of efficient combinations of inputs and outputs, and distance from the frontier as a measure of inefficiency. In the example shown in Figure 6.5 the data points could be schools or training institutions.

The dashed lines then represent the inefficiency of a given point – the vertical line suggests the school could produce the same number of graduates with fewer staff; the horizontal line, that the school could produce more graduates with the same level of staffing.

The attribution of efficiency according to the medical school's position in relation to the frontier raises some concerns. It takes no account of the differences in the environment of different schools, which may make the delivery of training more difficult. A major assumption is that there is consistent quality of training and quality of trainee levels. If those assumptions are flouted, then the analysis may incorrectly attribute distance from the frontier to inefficiency rather than better quality. Hence, in all contexts, the use of frontier analysis should proceed with caution and an understanding that it may give seriously misleading results where there are systematic quality differences between the units being compared.

Further analysis that seeks to measure quality differences can be helpful in clarifying the limitations of a frontier analysis, although quality assessment is difficult and data are usually not available, which implies that ad hoc studies to support interpretation of frontier analyses are likely to be necessary.

Figure 6.5 Hypothetical example of a frontier analysis: training staff to number of graduates



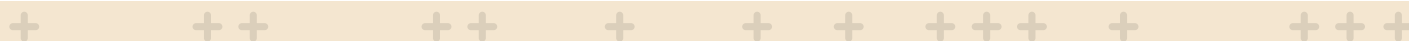


6.5 Conclusion

The analysis of the health worker education market can vary considerably in breadth and in depth, depending on expertise, financial resources, data and information, and time available. It can cover the whole range of health occupations or be limited to a few. It can go into great detail in exploring numerous variables, or more simply be limited to basic variables such as demographic indicators, number of admissions and of graduates, and characteristics of educational institutions. More sophisticated analysis could add variables relative to quality of education, alignment of programmes to health service needs, competencies of educators, and opinions of employers on graduates, to give a few examples.

References: Module 6

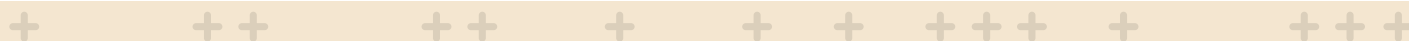
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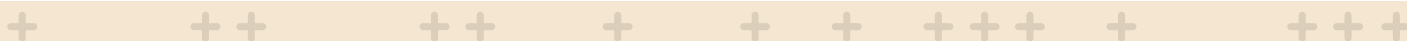
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Module 7

Supply of health workers and its determinants

Summary

This module introduces the reader to the concept of labour market supply and provides guidance on key steps to be undertaken for an analysis of health workforce supply.

The key steps include guidance on the following:

- how to measure the supply of health workers
- how to identify and analyse the main characteristics of the health workforce
- how to review and assess the role of monetary compensation in supply
- how to review and assess how non-wage job characteristics affect supply
- how to identify policy implications and make recommendations for interventions.

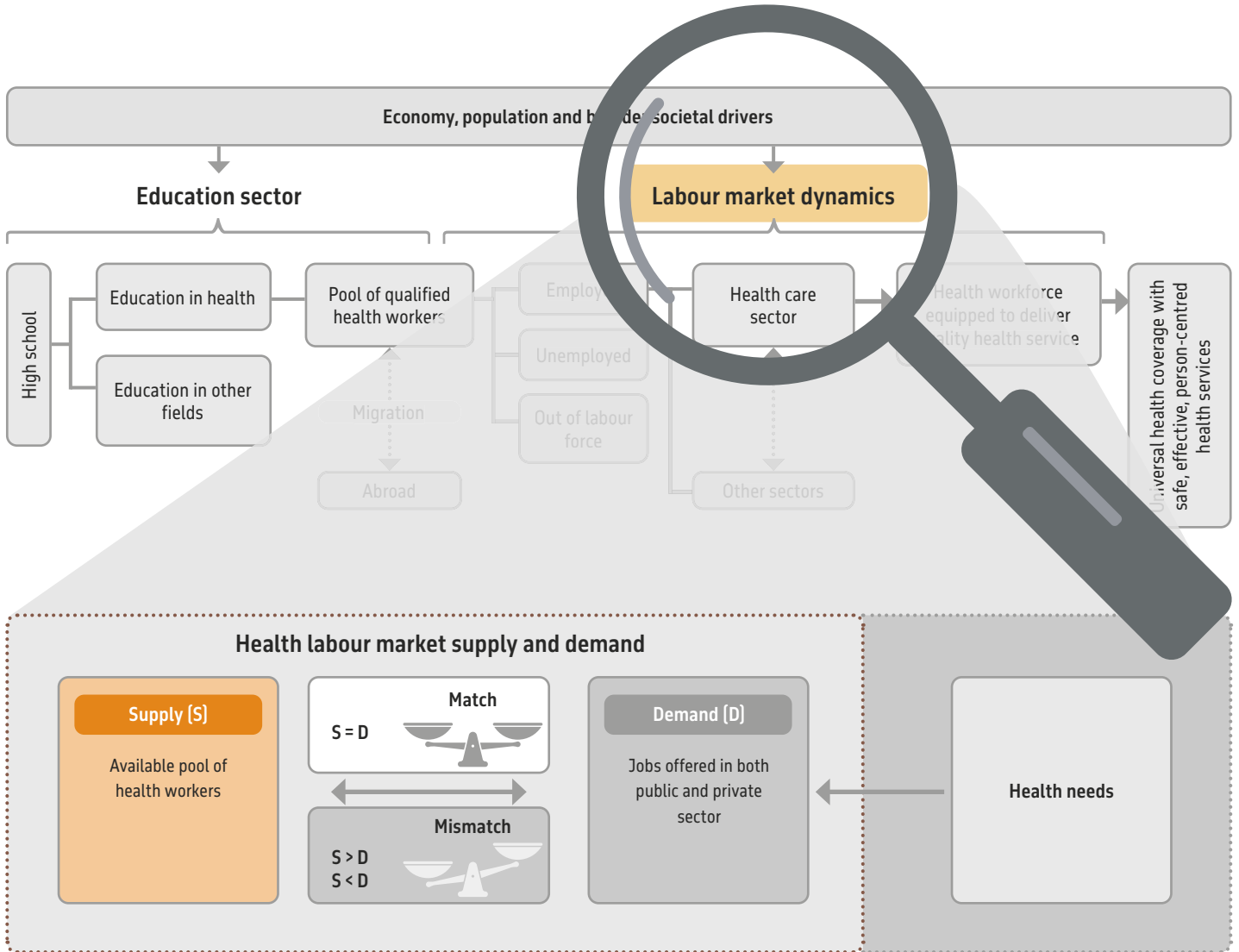
To illustrate the key steps, common policy challenges countries face are discussed, such as increasing overall supply and the scarcity of qualified health workers in underserved areas. Important tools that can help with analysing the supply of health workers are also presented.

7.1 Introduction

The supply of health workers represents the quantity of health workers who are willing to work at prevailing wages in a country's health institutions, including hospitals, clinics, pharmacies, diagnostic centres, community worker outposts and training centres. In the health labour market framework, the starting point for understanding supply is the pool of qualified health workers available [Figure 7.1]. The dynamics between production capacity (Module 6) and migration determine the size of the pool. Production capacity is determined by a country's national and subnational endowment of functional training institutions and their geographical distribution. Governments regulate production by licensing training institutions and health workers. In many low- and middle-income countries, a substantial number of health workers without proper qualifications are also present in the pool. Migration flows affect the pool when

domestically produced health workers emigrate and when foreign ones enter the national health labour market. Labour market forces determine how many in the pool of qualified health workers will be employed or unemployed but looking for health sector work, and a final group that is not looking for employment (that is, out of the labour force). Finally, among those employed a portion will be in the health sector and the remaining in non-health sectors.

Figure 7.1 Health labour market framework



This module aims to inform and provide guidance on how to undertake a rapid health workforce supply analysis. It describes common metrics used to measure the supply of the health workforce. It discusses the dynamics that affect health worker supply, and analytical tools used to understand these dynamics.

7.2 Key steps for analysing supply of health workers

This section presents some of the key elements of an analysis of the supply of health workers. There are many questions related to the supply of health workers, and their relative importance or relevance depends on the context and policy issues under study. At a fundamental level, it is important to measure some key supply elements, for example the available pool of qualified health workers, levels of migration (internal or external), those employed in the health and other sectors, labour force participation, and the available stock of workers present to deliver health services. These metrics give a real sense of the size of the health workforce that is available nationally and subnationally.

A second level of analysis involves estimating the density of the health workforce and its distribution. Density estimates give a sense of per capita availability of health workers. This can be done by cadres, at the national and subnational levels. Further, examining how density varies across geographies provides insight into how equitably health workers are distributed across regions, for example urban and rural areas or across states and provinces. Comparing densities by cadre estimates the skills mix (for example, the ratio of doctors to nurses) of the health workforce and provides insights as to whether efficiency gains can be achieved by changing the skills mix.

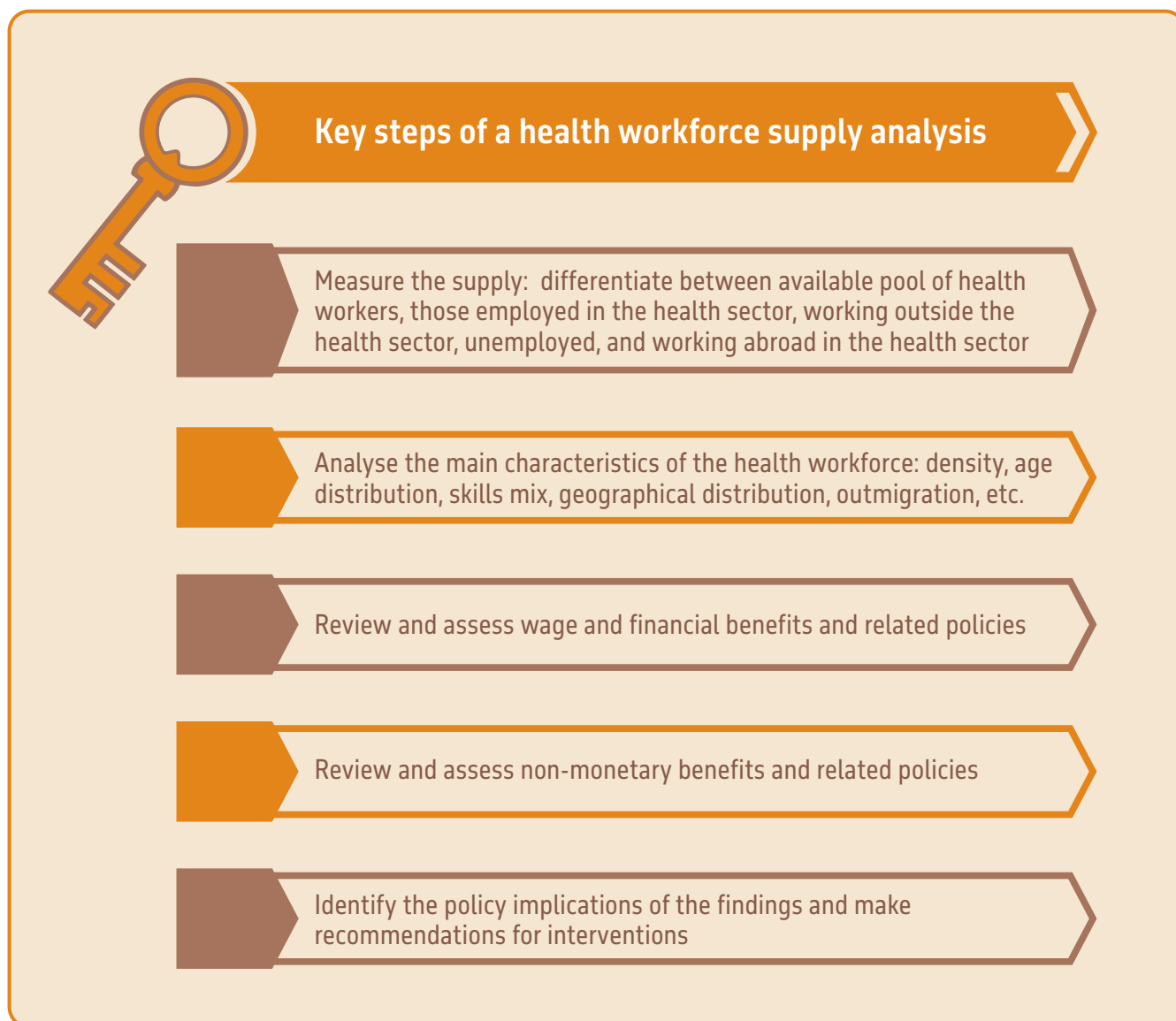
More sophisticated analysis involves studying how supply might respond to changes in the wage rate and in non-monetary benefits. Here concepts such as supply elasticity enable judging the extent to which participation in the labour market can be expected to increase as a result of increases in salaries. Further, observational studies or discrete choice experiments can provide insight on how non-monetary job characteristics affect labour supply. Finally, all these concepts and tools can provide important guidance on how to think about human resource challenges.

As a result, this module is structured around the key components of a health workforce analysis presented in **Figure 7.2**. The first section discusses how to measure the supply of health workers. The second section highlights the importance of identifying the main characteristics of the health workforce. The third section focuses on the role of monetary compensation in supply. The fourth section discusses how non-wage job characteristics affect supply. The last section discusses the implications of these learnings, in particular, for common policy challenges countries face, such as increasing overall supply and the scarcity of qualified health



workers in underserved areas. The module also presents important tools that can help with analysing the supply of health workers and health workforce policies in a country.

Figure 7.2 Key steps for analysing the supply of health labour



7.2.1 Measure health workforce supply

The first step in determining the supply of health workers in a country is to know the total number of available workers and the number of those willing to participate in the health labour market.



The available pool of qualified available health workers (P) comprises those currently employed in the health sector (EiH), those employed in non-health sectors (EnH), those unemployed but looking for work in the health sector (U), and health workers who are out of the health labour force (OLF) because they are not actively looking to work. From a labour market theoretical perspective, these elements can be illustrated in the form of equations, as illustrated in **Box 7.1**.

Box 7.1 Health labour market equations

Equation 1 indicates the formula for calculating the available pool of qualified health workers.

$$P = EiH + EnH + U + OLF \quad \dots[1]$$

Where: P is the available pool of qualified available health workers
 EiH are those employed in the health sector
 EnH are those employed in non-health sectors
 U are those unemployed but looking for a job in the health sector
 OLF are those out of the health labour force

All else being the same, the number of health workers participating in the health labour force (HLF) is the sum of those currently employed or unemployed but looking for work (Equation 2). Health workers are considered as employed if they have a job and work for a minimum number of hours in a paid job or a job without pay [1]. To be considered unemployed, a worker should currently not have a job but be actively looking for one for some specified duration (such as the past month). Using this classification, HLF represents the supply of health workers:

$$HLF = EiH + U \quad \dots [2]$$

Where: HLF represents the supply of health workers

The size of HLF only tells us how many health workers participate in the labour market but does not indicate the relative proportion it represents of the overall potential health workforce. This is captured in the health labour force participation rate (Equation 3):

$$\text{Health labour force participation rate} = HLF/P \quad \dots [3]$$

Where: P is the size of the pool of qualified health workers.

In countries with good health workforce information systems, notably where there are live registers of working health workers, estimating the health labour force or the health labour force participation rate can be relatively straightforward [2]. In many countries, this can be a complicated task, due to the diversity of the health workforce, with public and private providers, modern and traditional practitioners, and substantial numbers of informal health workers. Estimating the health labour force can be misleading without live registers, because of the lack of updated information on health workers leaving the workforce due to death, migration, retirement or other causes. Moreover, only some cadres are likely to be registered, and those that are not will not be counted. Finally, in countries with a large number of informal health



workers, there is a probability that the health workforce will be substantially underestimated. Studies to measure the health labour force in low- and middle-income countries have typically used non-routine sources of information such as employment surveys and, in some instances, the national census.

One should also differentiate between information about stock and flows of health workers. The stock of health workers represents a quantity existing at a point in time – for example, the total number of health workers at a point in time. Health workforce flows provide information about the health workforce for an interval of time – for example, the number of health workers who migrated in 2020.

The WHO National Health Workforce Accounts (NHWA) is a system by which countries progressively improve the availability, quality and use of data on the health workforce through monitoring a set of indicators. Data reported by countries are available on the WHO NHWA data portal [Box 7.2]. Module 3 provides more information on data and NHWA.

Box 7.2 National Health Workforce Accounts data portal

The WHO NHWA data portal [3] hosts a variety of health workforce statistics that are relevant to measuring the health workforce. The example below from Thailand shows some key statistics related to the total number of health workers employed (EiH) and their density per 10 000 population for several key cadres. The last column provides an estimate of the number of health workers graduating in the latest year (2018), giving a measure of the gross production capacity of Thailand. Such workforce statistics can be useful to provide a description of the health workforce of countries, as well as making key workforce measures readily available.

	Total	Density (per 10 000 population)	Annual graduates
Doctors	55 890	8.05	2 470
Nurses	191 575	27.59	10 670
Midwives	6 858	1.00	NA
Dentists	16 547	2.38	696
Pharmacists	38 398	5.53	1 800

NA = Not available.

7.2.2 Analyse the main characteristics of the health workforce

Knowing the size of the health labour force or EiH enables estimating several policy-relevant statistics, such as the distribution of workers by age, sex and occupation. For example, such information is useful to alert policy-makers as to whether the health workforce is ageing,



enabling them to plan ahead by increasing the production of health workers or encouraging immigration to avoid disruption to health services. Similarly, comparing the numbers of health workers in different cadres provides insight into the available skills mix and related efficiencies. For instance, a ratio of nurses to doctors close to or lower than 1 would raise questions about potential efficiency gains, as many clinical and public health functions could be performed by nurses, who cost less to train and to employ and are produced more rapidly.

Dividing the health labour force or EiH by the population gives an estimate of density, which is the number of health workers per unit of population (Box 7.3). Densities can be estimated for different cadres at subnational levels and for different geographies. For example, in India, according to the National Sample Survey Organization, there were 3.4 doctors and 3.2 nurses and midwives per 10 000 population in 2012; this density is substantially lower in rural areas, indicating the skewed urban–rural distribution of the health workforce [4].

Box 7.3 Which health workforce–population ratio for countries?

WHO, in its global role as advocate of evidence-based health workforce policies and investments, has developed thresholds of health worker density that are considered generally necessary to achieve a high level of coverage of essential health services, compatible with the progressive realization of universal health coverage. These tools can also assist with the monitoring of health workforce trends over time. For example, in the analytical work leading to the development of the WHO Global Strategy on Human Resources for Health: Workforce 2030, WHO identified an “SDG index threshold” of 4.45 doctors, nurses and midwives per 1000 population as an indicative minimum density representing the need for health workers [5].

However, while these thresholds are global numbers and useful for international comparisons, for monitoring and for advocacy, WHO does not recommend that they are directly used to set targets for the health workforce at national level, because they do not take into account national specificities such as context, baseline conditions, health system structure, availability of financial resources, and presence of occupational groups other than the three professions (doctors, nurses, midwives) captured by this threshold.

The development of national targets for health workforce availability (absolute numbers, density) and composition (skills mix, for example relative proportion of nurses to physicians) should be determined according to national context and policy priorities, and should be validated against a realistic assessment of the availability of resources.

7.2.3 Review and assess wage and financial benefits and related policies

Economic theory offers important insights into the drivers behind decisions to participate in the labour market and to what extent. In choosing a job, individuals consider both the monetary compensation and the non-monetary attributes of the job. Wages have two effects on the labour supply: first, they can make it more likely for a worker to participate in the labour market; second, workers already in the health labour market may increase the number of hours worked. In the long run, higher wages relative to other occupations make the health sector more attractive and will draw more people into it.



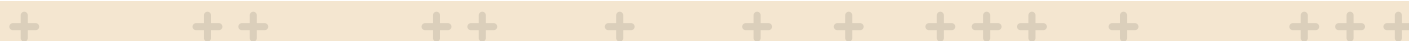
Wage or monetary benefits and health labour force participation

In the neoclassical economic model of labour–leisure choice, individuals have two alternatives to spend their time in a given period – on work or on leisure activities. In this model, the decision as to how much time to allocate to these competing activities depends on the prevailing wage rate. Each worker has a reservation wage, which is the minimum wage at which he or she is willing to participate in the labour market. The reservation wage can be different for each individual and cadre. For example, the average *reservation wage* for doctors is higher than that of community health workers. At wage rates below their reservation wage, health workers will prefer not to work, that is, they will choose not to give up their leisure time for work. As the wage rate increases, it will come to a point when it is equal to a worker’s reservation wage; at this point they are indifferent about working or not. At wage rates above their reservation wage, workers will be willing to work – that is, they will give up some of their leisure time for work.

Increasing the wage rate increases the probability that a worker will participate in the labour market. The positive correlation between wage rates and labour force participation means that one way to increase participation rates [shift people from out of the labour force to either employed or unemployed status] is to increase wages. However, simply increasing wages may not be sufficient; the wage rate needs to be higher than the reservation wage. Therefore, policies that aim to increase the supply of health workers by offering higher wages need to have a good estimate of the reservation wage of the target workers. Further, non-wage factors [such as leave, benefits and location] also influence decisions to participate in the labour force.

Hours worked and the wage rate

Once a worker has decided to participate in the health labour market, he or she must choose how much time to give to work [1]. Jobs in the health sector can have fixed hours of work [for example, a nurse working in a public hospital] with little flexibility in hours worked, or can have flexible hours [for example, a doctor working in their own clinic]. When working hours are fixed and no additional compensation is available for extra hours, then workers have no incentive to change how much time they devote to work or leisure. However, often there are opportunities to increase income by working extra hours. According to economic theory, an increase in the wage rate has an income and substitution effect. Higher wages increase workers’ income, and this can make them want more or less leisure time. For example, wealthier health workers would opt for more vacation time if their income increased even more, but the opportunity of earning more might reduce the leisure time of low-wage health workers. Therefore, an increase in the wage rate can either increase or decrease the time a worker devotes to work, depending on whether the income or the substitution effect dominates. To illustrate, as wages increase health workers might be inclined to work more because of the dominance of the substitution



effect. However, as wages increase further, after a point, they might feel wealthier and demand more leisure time due to the income effect now dominating. This produces a backward bending supply curve.

Calculating wage elasticity of labour supply and empirical evidence

Labour supply elasticity is the responsiveness of the quantity of labour supplied, in terms of workforce participation or time spent working, to changes in the wage rate. It is calculated as the percentage change in hours of work (or labour force participation) associated with a 1% change in the wage rate (Box 7.4). Elasticity can be positive or negative. The greater the absolute value of the labour supply elasticity, the greater is the responsiveness of hours worked (or labour force participation) to changes in the wage rate. If the absolute value of the elasticity is less than 1, supply is not responsive to changes in wage rate, and if it is greater than 1, supply is responsive to changes in the wage rate.

Box 7.4 Elasticity of labour supply

The elasticity of labour supply is the responsiveness of labour supplied, typically measured in terms of hours worked or participation rate, to changes in the wage rate.

Labour supply elasticity gives the percentage change in hours of work or participation associated with a 1% change in the wage rate. The sign of elasticity can be positive or negative; a positive elasticity indicates that hours worked or participation increase as wages increase, while a negative sign indicates that hours worked or participation decline as wages increase. The absolute size of elasticity reflects how responsive hours worked or participation are to changes in the wage rate.

The equation below illustrates the labour supply elasticity measured in terms of hours worked.

$$\sigma = \frac{\text{Percentage change in hours worked}}{\text{Percentage change in wage rate}} = \frac{\Delta h/h}{\Delta w/w} = \frac{\Delta h}{\Delta w} \cdot \frac{w}{h}$$

If supply is measured in terms of participation, then the numerator in the equation will be the percentage change in the number of individuals participating in the health labour force.

To illustrate, suppose that at \$10 per hour, 40 community health workers are willing to work, while at \$20 per hour, 50 are willing to work. The labour force participation elasticity will then be calculated as follows:

$$\sigma = \frac{\text{Percentage change in individuals working}}{\text{Percentage change in wage rate}} = \frac{25\%}{100\%} = 0.25$$



In this example, the elasticity of participation is positive and less than 1; this indicates that workforce participation increases with wages but is inelastic, that is, not responsive to changes in the wage rate. In this case, a doubling of wages increases labour force participation by only 25%.

Studies that estimate the labour supply elasticity typically use regression analysis according to the following equation [1]:

$$\text{Log } L = \eta \text{Log } w + \gamma \text{Log } Y + \text{other variables}$$

Where L is the quantity of labour supplied (hours worked or participation in the labour market by an individual), w is the wage rate, and Y is the individual's non-wage income. The coefficient of interest η provides the elasticity of supply (or labour force participation); γ is the non-wage income elasticity.

Studies that estimate the labour supply elasticity of health workers are largely from high-income countries and focus on doctors and nurses. There is substantial variation in the estimated elasticities; however, the main conclusion of most studies is that though the estimated elasticities are generally positive, the absolute elasticity values are well below 1. This indicates that the supply of doctors and nurses is only moderately responsive to increases in the wage rate. Other non-wage factors are important in the decision to participate in the labour market. These include quality of life, opportunities for professional growth, and workload [6].

Health workers often have the choice to participate in multiple labour markets, thanks to the free movement of labour. A doctor from India or a nurse from the Philippines can choose to participate in the domestic or foreign (for example United Kingdom, United States) labour market. The migration of health workers from low- and middle-income countries to high-income countries could reflect the responsiveness of workers to wage differentials between the labour markets in low- and middle-income countries and those in high-income countries. The decision to enter or withdraw from the health labour market is often a household decision rather than an individual one. Studies show that other family income can impact health labour market participation decisions [7]. This is an important factor to account for, as it may explain why sometimes a wage increase only leads to a modest increase in labour participation.

7.2.4 Review and assess non-monetary benefits and related policies

In choosing a job, individuals consider also its non-monetary attributes. Observations of the labour market in high-income countries show that a substantial proportion of individuals seeking employment accepted jobs where wages were below their stated reservation wage or rejected jobs where wages were above their stated reservation wage [8]. This indicates that non-wage attributes are also important considerations in choosing a job and in participating in the labour market. The effect of non-wage job characteristics on job choice decisions has been largely studied in the context of high-income countries [9]. Non-wage characteristics include



benefits such as health insurance, maternity leave, vacation time, and characteristics of the work environment in terms of autonomy, flexible working hours, mandated limit for weekly working hours, and the physical work environment [for example, infrastructure, equipment and location].

Health worker characteristics are also important determinants of labour supply. Studies on nurses in the United Kingdom and the United States have reported that the wage of the spouse and household non-labour income were negatively associated with labour force participation and hours worked [10]. Further, the presence of very young children also had a negative impact on labour force participation and hours worked by nurses [11]. An implication is that, particularly for nurses, efforts to increase participation should include addressing the need to care for children, as some programmes in the United Kingdom have done [11]. These studies also help explain why health workers withdraw from the health workforce [7, 12].

A rich set of studies on health worker preferences for wage or non-wage job characteristics from low- and middle-income countries highlights the importance of non-wage job characteristics on job choice. These studies, which are largely focused on understanding preferences for rural jobs, use the discrete choice experiment (DCE) methodology to elicit stated preferences (not actual behaviour) for wage and non-wage job attributes [Box 7.5]. These studies generally found that wages or monetary compensation had negligible effects on doctors' but larger effects on nurses' willingness to accept rural jobs [13, 14], though in some countries, wage increases had large effects on job acceptance [15]. Jobs that offered opportunities for specialization or additional training were strongly preferred by both doctors and nurses, as were accelerated promotions [13–15]. The work environment, such as the condition of equipment, facility infrastructure, having adequate support staff, and supportive management, also emerged in several studies as important for health worker job choices [13, 16]. Location characteristics, such as good schooling for children, connectivity and housing conditions, were among other important non-wage job characteristics valued by health workers [13].

Approaches to measure the effect of non-wage job characteristics on labour supply are presented in Box 7.5.

Box 7.5 Measuring the effect of wage and non-wage job characteristics on labour supply

There are several analytical methods that can provide understanding of how non-wage job characteristics – such as housing, living conditions, education facilities for children and work environment – affect labour supply. Qualitative methods such as in-depth interviews and focus group discussions provide an important source of information on health worker views on how non-wage characteristics affect their decisions to participate in the labour market or not.

Several quantitative techniques can be used to provide insight into the relative importance of different non-wage job characteristics to health workers. One simple way is to ask health workers to rate (on a scale from 1 to 10, for example) the importance they give to specific non-wage job characteristics. While this method provides information on what job characteristics are important (or not) relative to each other, it does not allow an assessment of how health workers might trade off between different job characteristics. Techniques such as best-worst scaling (BWS) or discrete choice experiment (DCE), part of the family of conjoint analysis techniques, can be used to measure health worker preferences for different non-wage job characteristics. In BWS, respondents are presented with a set of choice tasks, each with several items or job characteristics; the respondent is asked to indicate the best and the worst items, with the overall aim of obtaining a full ranking of items. There are three types of BWS, which differ in terms of the complexity of the items or options under consideration: BWS object case (case 1), BWS profile case (case 2) and BWS multiprofile case (case 3). An attractive feature of BWS is that it places a lower cognitive burden on respondents (compared to DCE).

DCEs have also been widely used to understand health worker preferences for wage and non-wage job characteristics. A typical DCE focused on studying health worker job preferences involves surveying health workers and asking respondents to choose between different hypothetical job profiles. These job profiles are defined in terms of job attributes (such as salary, location, hours worked or training benefits) and their levels (see examples below).

Example 1. Choice set showing job attributes and levels

CHOICE SET 1: WHICH OF THESE TWO JOBS DO YOU PREFER?

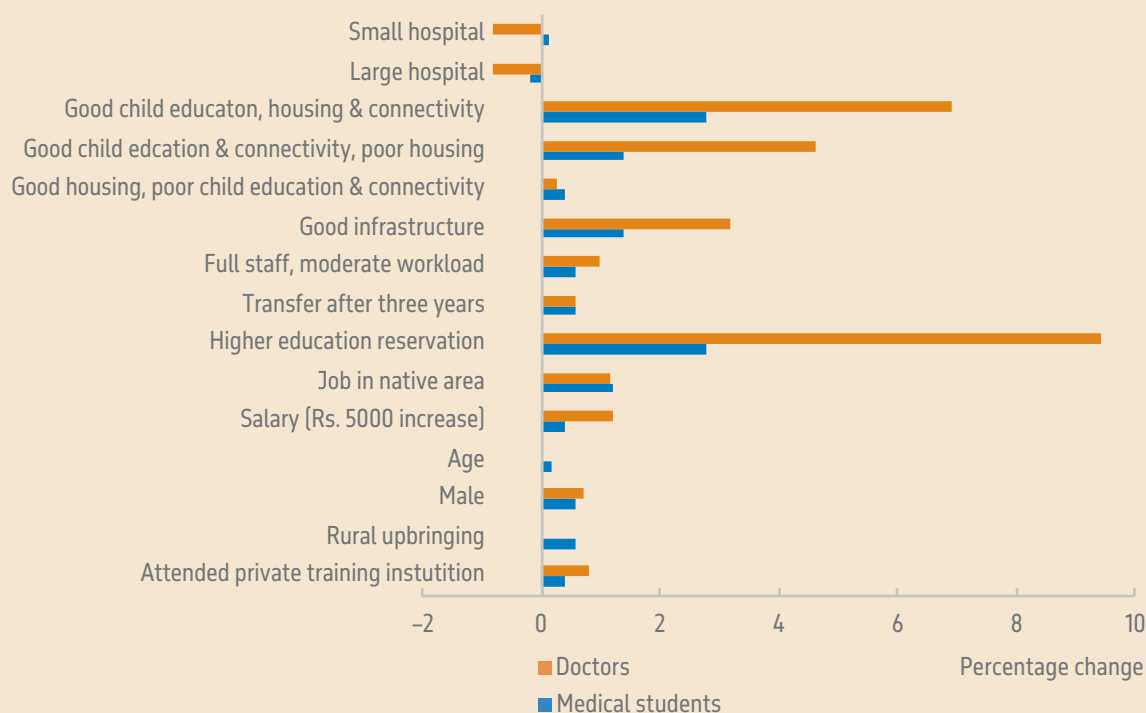
Job 1		Job 2	
Place of work	50–100 bed hospital	Place of work	20–30 bed hospital
Area	Place is <u>well</u> connected Has <u>good</u> education facilities for children <u>Good</u> housing provided	Area	Place is <u>poorly</u> connected Has <u>poor</u> education facilities for children <u>Poor</u> housing provided
Infrastructure at the place of work	Building in poor condition Inadequate equipment Frequent shortages of supplies and drugs	Infrastructure at the place of work	Building in good condition Adequate equipment No shortages of supplies and drugs
Staff	Fully staffed and moderate workload	Staff	Few staff and heavy workload
Salary (with allowances)	80,000 per month	Salary (with allowances)	45,000 per month
Change in job location closer to a town/city	On completion of 3 years	Change in job location closer to a town/city	On completion of 3 years
Further education	Only short term training programmes to upgrade skills	Further education	Easier admission to postgraduate education after 3 years of this job through quota
Location of job	Your job is in your native area	Location of job	Your job is <u>not</u> in your native area

Which of these jobs do you prefer? Job 1 Job 2

Would you accept this job if it is offered to you? Yes No

Respondents are presented with a series of choice sets containing different job profiles defined in terms of varying attribute-level combinations. Respondents have to choose one of them. This allows for quantifying the impact of changes in attribute levels on the probability of selecting a job. Several important insights into health worker job preferences can be gained – for example, estimates can be made of how strongly health workers value particular job attributes, how much salary they would be willing to give up or they would require for particular attributes (such as rural location), and the effect of wage and non-wage job attributes on the probability of selecting a job (see example). DCEs rely on what respondents say they will do (stated preferences), rather than what they actually do (revealed preferences).

Example 2. Percentage change (over base) in number of medical students and doctors willing to accept a rural job in the presence of specific job attributes and individual characteristics (base: salary 30 000 rupees per month)



Source: Rao et al. [13].

7.2.5 Identify policy implications and recommendations

The discussion in the previous sections provides insights into some of the human resources for health policy challenges that countries face. Policy-makers are often tasked with finding ways to overcome shortages of qualified health workers. A common policy response is to simply train more health workers. This alone is not likely to be a successful strategy. The internationalization of the health labour market means that the relationship between production and supply is not linear. That is, the pool of available qualified health workers in a country or a region depends on both domestic training capacity and on net migration flows. Assuming free mobility of labour, health workers with highly transferable skills have a larger choice of labour markets. Therefore,



a simple strategy of training more workers will not necessarily increase the domestic pool. Strategies to increase the local supply of health workers need to first recognize the extent to which emigration is impacting the local labour market. Specific policies to retain health workers in the national pool may be necessary.

Even when successfully increasing the overall supply, the distribution of this supply can remain persistently unequal across geographies, with the distribution skewed towards urban centres and areas with higher socioeconomic status. This distributional supply problem represents an inefficiency and is a huge challenge for achieving universal health coverage. Such uneven distribution is prevalent in almost all countries, regardless of the level of economic development or organization of the health care system [17]. Evidence suggests that health workers are often not located in areas that have the highest health care needs [18].

A common policy response to address the unwillingness of qualified workers to participate in the rural health labour market is to increase the financial remuneration. For example, many countries offer higher salaries or incentives to work in rural areas or the opportunity to undertake private practice after working hours. Such policy solutions can have variable effectiveness. Health workers decide to participate in the rural labour market by comparing their reservation wage with the prevailing wage rate. Unless the wages are above health workers' reservation wage for rural work, they are unlikely to encourage rural labour force participation. Further, estimated supply elasticities from studies on doctors and nurses indicate that moderate salary increases will elicit only modest increases in labour supply and are most effective for newly entering health workers [19]. Large increases in salaries may not be affordable in low- and middle-income countries.

The solution to the rural supply problem lies in also addressing the non-wage determinants of labour supply. Health worker participation in labour markets, particularly in rural ones in low- and middle-income countries, appears to be significantly influenced by non-wage job characteristics. Generally, these interventions are harder to implement compared to increases in monetary benefits. For instance, improving living conditions, providing better educational opportunities for workers and their families, or improving infrastructure in the working environment require sustained investments over a long period and are costly to implement. Strategies to increase the supply of health workers, particularly those with higher reservation wages such as doctors and nurses, need to include both monetary and non-monetary elements that are aligned with their preferences.

Box 7.6 summarizes recommended policy interventions to improve the attraction, recruitment and retention of health workers in rural areas.



Box 7.6 Recommended policy interventions to improve attraction, recruitment and retention of health workers in rural areas (by category)

A. Education recommendations

1. Enrol students with a rural background in health worker education programmes
2. Locate health worker education facilities closer to rural areas
3. Bring students in health worker education programmes to rural and remote communities
4. Align health worker education with rural health needs
5. Facilitate continuing education for rural and remote health workers

B. Regulatory recommendations

6. Enable rural health workers to enhance their scopes of practice to better meet the needs of their communities
7. Expand range of health worker occupations to meet rural health needs
8. Ensure that compulsory service agreements respect the rights of health workers and are accompanied with appropriate support and incentives
9. Tie education subsidies for health workers to agreements for return of service in rural areas and remote areas

C. Financial incentives recommendation

10. Provide a package of attractive incentives to influence health workers' decisions to relocate to or remain in a remote or rural area

D. Personal and professional support recommendations

11. Improve living conditions in rural and remote areas
12. Ensure workplace safety in rural and remote health facilities
13. Ensure decent work for health workers in rural and remote areas
14. Foster the creation of health workforce support networks
15. Develop and strengthen career pathways for rural health workers
16. Facilitate knowledge exchange between health workers
17. Raise the profile of rural health workers

Source: World Health Organization [20].

Another solution to increasing the supply of highly trained health workers lies in task shifting. Health workers with high reservation wages, such as doctors and specialists, require higher wages to participate in the rural health labour market, which may not offer such high levels of remuneration. Moreover, for government posts, budgetary constraints are likely to render offering high wages unaffordable. Moreover, raising salaries within government systems is often difficult because of service rules. On the other hand, nurses or community health workers have lower reservation wages and their supply is more responsive to wage increases. Indeed, many low- and middle-income countries have invested in providing additional clinical training to nurses and community health workers to enable them to take on the clinical functions of highly trained health workers. Studies on such task shifting have found that it does not result in poorer quality of care compared to that produced by higher-trained health workers [21–23].



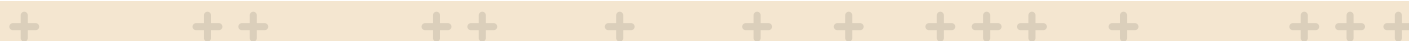
7.3 Conclusion

The analysis of the supply of health workers is essential for a better grasp of the current state of the health labour market, but it also provides a way for thinking about designing effective human resource policies. Knowing the size and characteristics of the health labour force enables an estimation of several policy-relevant statistics, such as the distribution of health workers in terms of age, sex, skills mix, density and geography, among others. Such information is useful to inform policy-makers and alert them to plan accordingly.

Health workers' decisions to participate in the labour market are driven by both monetary compensation and the non-monetary attributes of jobs offered. Decisions to participate in the labour market depend on the reservation wage of workers, which will vary by cadre. Evidence from high-income countries shows that the supply of doctors and nurses is only moderately responsive to increases in the wage rate, and that very large increases would be needed to induce moderate increases in labour supply. While there is a lack of systematic evidence on this issue in low- and middle-income countries, the impact of wage increases might be larger. Observations indicate that non-wage attributes are important in choosing a job and in participating in the labour market. Health worker characteristics are other important determinants of supply, such as wage of the spouse, household non-labour income, or having dependents such as young children or aged parents. Policies to increase the size of the health labour force or change its skills mix or distribution across geographical areas require clear thinking about reservation wages and the effects of monetary and non-monetary factors on health workers' decisions.

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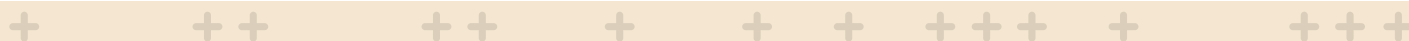
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Module 8



Demand for health workers and its determinants

Summary

This module introduces the reader to the concept of labour market demand and its potential usefulness and limitations in informing and evaluating health workforce policies.

Traditionally, analyses and policies have focused more on supply, and demand has received less attention. However, analysing the demand for health workers is key to better understand the interaction of the dynamics of the labour health market.

Key steps for undertaking a health workforce demand analysis include:

- define a strategy for policy research and analysis
- review contextual factors affecting the demand for health labour
- review economic factors
- identify key points of regulation affecting the demand for health labour
- examine the diversity of employers' perspectives and their implications
- examine the role of key stakeholders and the process for determining wages
- measure the demand for health workers.

8.1 Introduction

Analysing demand for health workers is key to better understand the health labour market, in particular the interaction between the supply of and demand for health workers, and to inform health workforce policies.

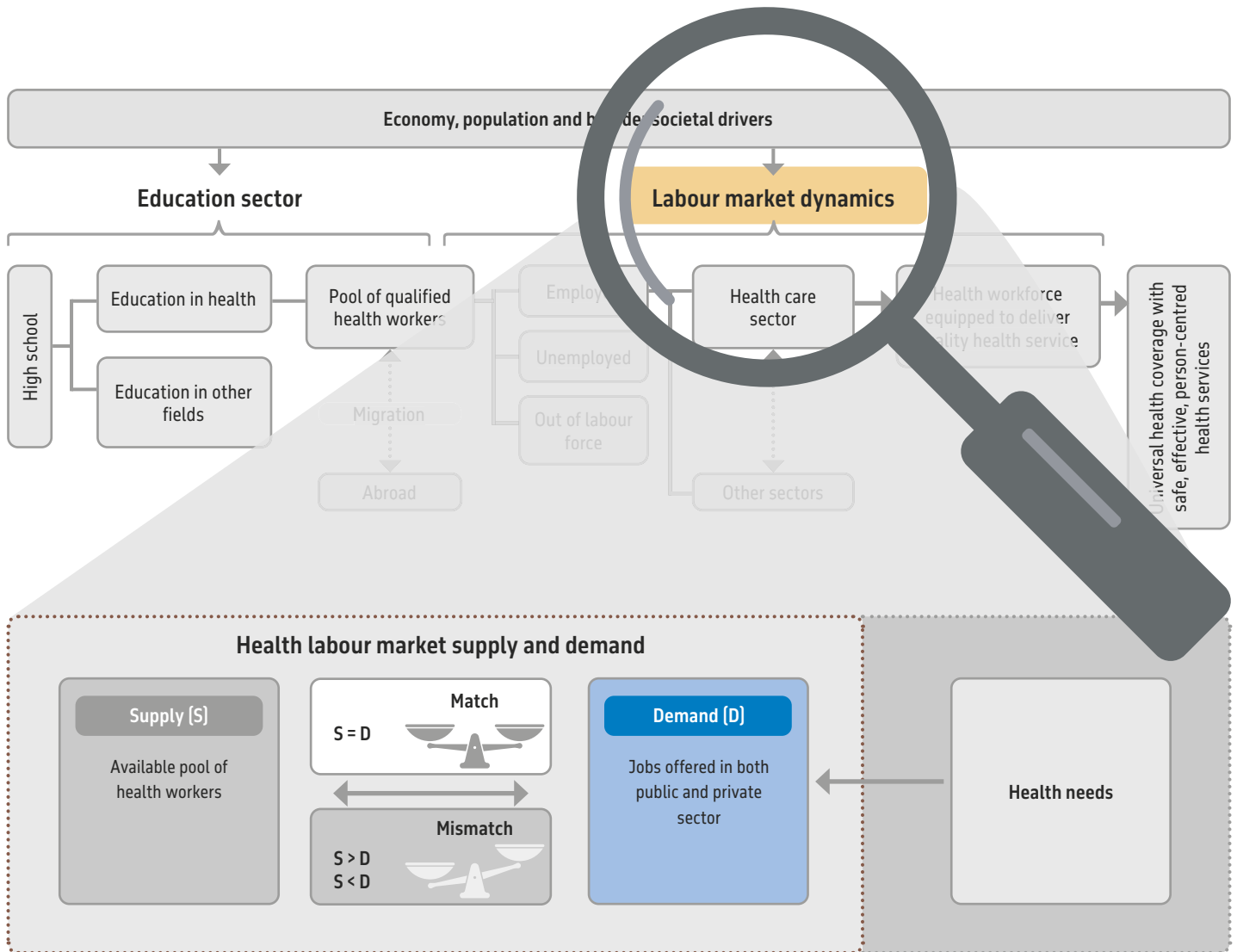
This module first defines the demand for labour and explains its importance within the context of a health labour market analysis (HLMA). Then, it reviews and presents key steps for undertaking a health workforce demand analysis.

Labour demand, and why it matters

The demand for health workers reflects the capacity and willingness to pay (of the government, the private sector, international actors and others) for the purchase of health care, which in turn drives the demand for employing health workers in public or private hospitals, public health centres, and other parts of the health system, including self-employed health workers [1]. In other words, the demand for health labour reflects the number of “positions” for health workers at a given wage rate and labour productivity.

Figure 8.1 schematically shows the demand for health labour within the context of the health labour market framework [2]. Demand interacts with supply to determine health labour market outcomes. Traditionally, analyses and policies have focused more on supply, and have given less attention to demand. However, analysing the demand for health workers is key to better understand the interaction between demand and supply, and related issues such as labour shortages, unemployment, employment in other sectors, or emigration. For instance, policies focusing on the supply side, such as training more health workers to address shortages, might be ineffective if factors related to demand are not taken into consideration.

Figure 8.1 Demand for health labour



The demand for health workers does not necessarily coincide with the need for health workers. The need for health workers is a normative function, and can be defined as the number of health workers, usually expressed as a threshold of minimum availability of health workers, required to attain the objectives of a health system, such as providing universal health coverage. Usually, budget constraints limit the possibility of recruiting the desired number of health workers and some needs will remain unmet. However, if [for instance] workers are not performing to their full capacity, an increased productivity of the existing workforce, by augmenting incentives, changing the allocation of tasks or investing in new technology, can meet an increase in demand for health services with no additional hiring of health workers. In sum, a simple statistical derivation of demand for labour, from demand for services, neglects some critical elements that directly influence the demand for health workers.

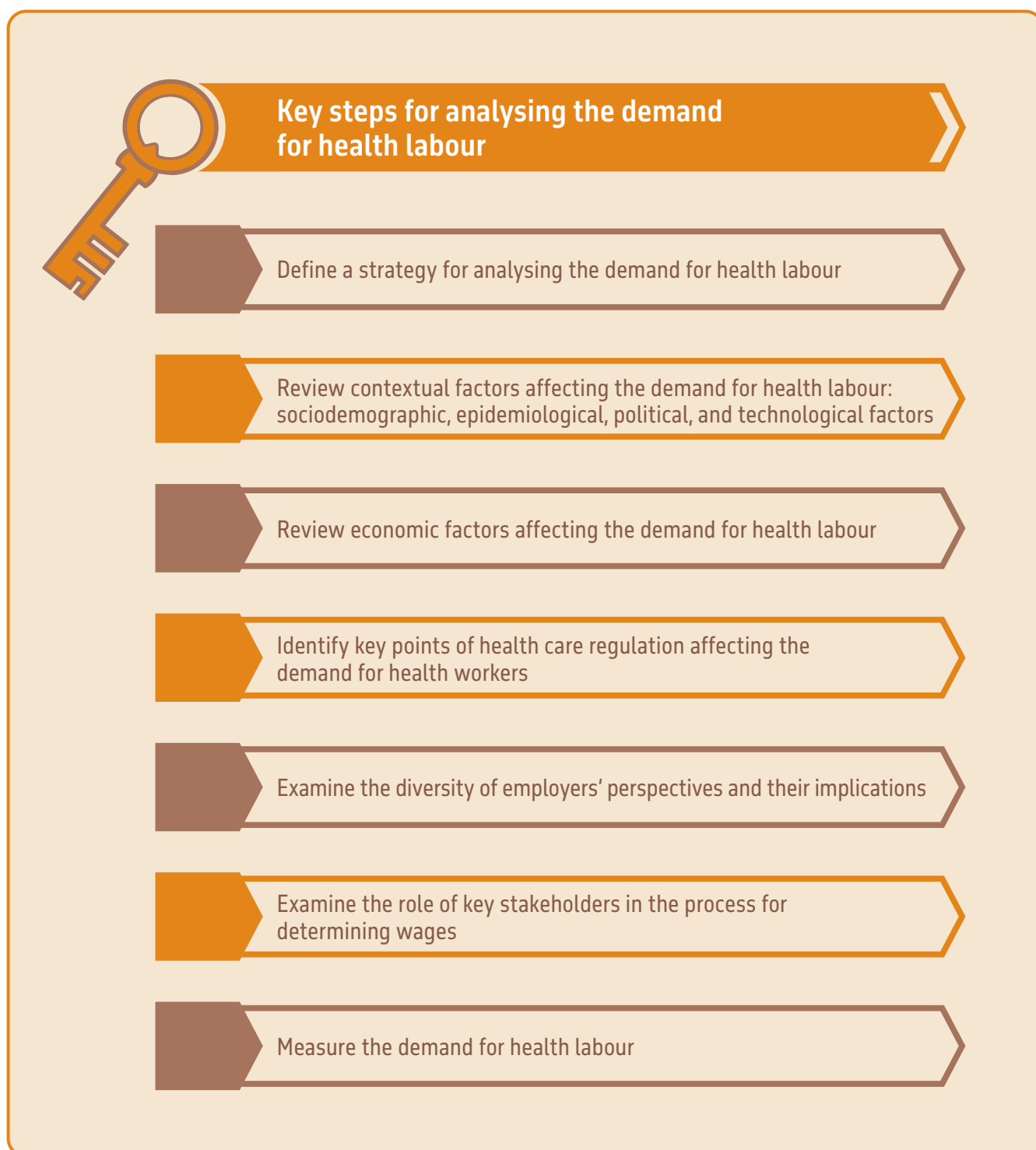
8.2 Key steps for analysing the demand for health labour

This section presents and discusses the key elements for analysing the demand for health labour. Given the interactive and dynamic nature of the health labour market, a strategic step-by-step approach in designing a study of demand is useful to avoid getting lost in a maze of complex relations. **Figure 8.2** presents a series of steps to undertake an analysis of the demand for labour.

Depending on the policy question (see Module 2 on the practical sequence for the process of conducting an HLMA), the sequence and the level of detail of each step might vary, and additional components can be considered.



Figure 8.2 Key steps for analysing the demand for health labour



8.2.1 Define a strategy for policy research and analysis

Measuring and assessing demand for health workers is important to support policy development. However, without a clear definition of the policy question, research can turn into a costly and marginally useful data collection exercise; hence the need to take time to understand the nature of the problem and describe the possible policy implications in detail from the employers' perspective. Since a large proportion of health workforce studies focus on the perspective of workers (supply side), redirecting attention to the employer perspective provides the necessary complementary and countervailing inputs to the HLMA.

8.2.2 Review sociodemographic, epidemiological, political and technological factors

Contextual factors, such as sociodemographic and epidemiological factors, influence the demand for health workers. The age distribution of the population is an important sociodemographic element to take into account. For instance, an ageing population, which is a major concern in high-income countries and increasingly in middle- and low-income countries, is giving rise to an increase in the demand for related health services and health personnel, such as nurses for home care.

Demand is also influenced by the political environment, including the priorities of decision-makers regarding the health sector and related policies.

Advances in science and technology and their application in health care are changing the content and organization of services and the profile of jobs. There will be a demand for new types of skills in technical areas such as bioengineering and digital data management, and in the application of artificial intelligence in areas such as radiology and precision medicine. The use of mobile technology is already changing the way services are organized and managed, especially in rural and remote areas. These advances in technology require not only an increase in technical skills, but also enhanced interpersonal skills to handle complex problems through teamwork and collaboration.

The trajectory of these changes is difficult to predict, but with relevant information on current trends, augmented by the views of knowledgeable key informants, research and horizon scanning, planners can devise scenarios of the changes that employers may expect [3].



8.2.3 Review economic factors

Economic factors play a very important role in influencing the demand for health workers. Module 5 on macroeconomic factors shaping the health employment sector discusses those factors, such as GDP trends, public deficits, and levels, sources and patterns of health expenditure.

The current and anticipated level of GDP per capita is an economic factor that is useful to capture, as countries with higher GDP tend to have a larger share of the workforce in the health sector.

The levels, sources and patterns of health spending in the public and private sectors, and expenditure on health workers, strongly influence demand. For example, budget constraints place a limit on the number of health workers that can be recruited. Therefore, capturing information on wage bill ceilings, budget deficits or a freeze in recruitment is important to understand the demand for health workers.

8.2.4 Identify key points of regulation affecting the demand for health labour

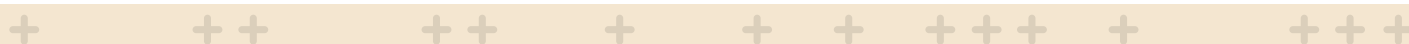
Regulations related to recruitment or deployment, norms (such as staffing requirements), remuneration and compensation, and working hours all have an impact on the demand for health workers.

For instance, in Japan, most health care providers are in the private sector. Health workforce regulations are quite liberal, and health facilities exercise considerable autonomy in the recruitment and compensation of their staff. In this environment, the compensation of health professionals is quite responsive to competitive labour market conditions, as managers have to negotiate wages with workers who are mobile and able to choose their own preferred place of employment [4].

Regulatory measures, and their level of implementation, vary from one country to another, and usually differ substantially between the public and the private sector (see Module 10 on analysing the health workforce in the private sector).

8.2.5 Examine the diversity of employers' perspectives and their implications

An analysis of demand for labour helps explain the process of interaction between employers and workers within a complex regulatory context. To obtain a full picture of factors influencing



demand, it is critical to know the perspective of employers. Employers are not a homogeneous group: they can be public or private, for-profit or non-profit, formal or informal, and their preferences can vary considerably. In the health sector, they face major constraints, such as a highly regulated labour market and strong professional groups, and a rapidly changing demand for health services.

In many countries, the government functions as a major employer (or funder of jobs) in the health sector. Public sector providers of services typically receive revenues from the public budget, which offers a relatively stable and predictable revenue stream, especially in countries with health insurance coverage, except in times of fiscal austerity. Often, employers face significant restrictions in the management of their workforce, including adherence to regulations that determine salaries and benefits for all civil servants. When employers have restricted autonomy to offer jobs with benefits and conditions more likely to attract and retain workers, this can lead to a mismatch between jobs and worker preferences, resulting in job vacancies, or in low motivation, absenteeism or coping behaviours such as dual practice during normal hours of work.

In some countries, the public sector offers contracts on a part-time or temporary basis that do not confer the benefits of full-time employment. These contracts may be advantageous for employers by giving flexible and lower-cost hiring options, but they do not offer quality of employment from the worker's perspective.

Regarding the private sector configuration, an analysis of the health workforce in the private sector differs depending on the level of economic development of a country. In many lower-income countries, private health care providers tend to be concentrated in affluent urban areas, where the population has a greater capacity to pay for health services. In many such countries, a large proportion of private providers operate in a rather unregulated environment, and recruit workers who engage in dual practice, especially physicians.

In lower-income countries, non-profit organizations represent a significant source of jobs. The type of jobs they offer and the profile of workers they seek, such as being committed to social goals, may differ significantly from those offered by for-profit employers. International NGOs often play a significant role in providing services to underserved communities; these employers can offer wages above the local market rates and attract health workers who may not have otherwise worked in these areas. While they offer valuable and much needed services, they also take away qualified workers from domestic employers.

In middle-income and high-income countries, higher household income and broader insurance coverage help to stabilize and expand the revenue base of private health care providers and their capacity to create jobs. In most high-income countries, the public sector tends to dominate



the health labour market, with notable exceptions such as the United States. Because private sector employers generally have a greater degree of freedom in setting compensation levels for their workers, they are able to offer higher wages and better conditions of service than the public sector. They may not be able to offer benefits such as pensions, but may offer training opportunities.

Many health professionals, especially those with more specialized skills, work on their own as self-employed workers, such as solo practice doctors or midwives. Their numbers and job profiles are difficult to ascertain in the absence of information on type of practice in professional registries. The situation is further complicated by the proliferation of dual or multiple practices. Failing to take into account this hidden component of the job market could result in very misleading conclusions about the size and scope of the demand for health workers.

8.2.6 Examine the role of key stakeholders in the process for determining wages

An HLMA requires an understanding of the constraints facing both employers and workers, and of the factors influencing the process of dialogue or negotiation between them, which is often undertaken on behalf of the workers by a trade union or professional association.

The process of collective wage setting plays a critical role in determining the equilibrium of the labour market. It is usually not a simple bilateral negotiation, and often involves multiple actors. An OECD study that reviewed wage-setting mechanisms for hospital staff in eight OECD countries (Canada, France, Germany, the Netherlands, New Zealand, Norway, Portugal and the United Kingdom) offers a useful conceptual framework for describing and analysing this process [5]. The study focuses on high-income countries, and while some specificities of low- and middle-income countries might not be captured, the findings of the study (summarized in [Table 8.1](#)) could still be a useful template in determining the main types of collective wage-setting processes in place for many countries.

Specifically, the study identified three mechanisms of wage setting:

- collective bargaining: the extent to which wages are determined collectively, normally in agreement with professional associations and trade unions;
- centralization: the level or levels at which wages are set, as an indicator of the extent to which the wage-setting process is centralized or localized;
- coordination: the extent to which wage setting is coordinated across sectors or companies, the level of national government involvement, and the frequency of wage setting.



Table 8.1 Characteristics of compensation setting for hospital staff: selected OECD countries

Type of characteristic	Findings
Collective bargaining (collectivization)	<p>All countries recognize trade unions and professional associations as representing the hospital workforce. The level of union membership (coverage) varies significantly across countries, but collective agreements normally cover the whole workforce in designated occupations or sectors, irrespective of their membership status.</p> <p>In all countries, employers are involved directly in negotiating and achieving collective agreements. In Canada, the Netherlands, New Zealand, Norway and the United Kingdom, employers are represented in national wage setting by some type of employers' association that has a specialist wage-setting capacity.</p>
Centralization of wage setting	<p>Most countries have a core national or sectorwide model. In France, the Netherlands, New Zealand, Norway, Portugal and the United Kingdom, the primary focus is at the national level, either across the whole health sector or in subsectors or specialties within health.</p> <p>Although national agreements are at the heart of policy, France, Norway, and the United Kingdom (to an extent) provide scope for "top-up" wage setting at the local level. New Zealand also has some separate regional or local collective agreements, which are in part a legacy of a previous decentralized wage-setting model.</p> <p>Of the eight countries, Canada has the greatest focus at the province level. Germany has a mixed pattern between national and regional approaches, as well as a trend towards fragmented wage setting.</p>
Coordination and government involvement	<p>All countries reported some degree of coordination of wage setting across the health or hospital sector. Coordination is based on national health sector (or subsector) collective frameworks (France, the Netherlands, Norway, Portugal and the United Kingdom), or occurs at the province level (Canada) or across central and local governments (Germany).</p> <p>Cross-sectoral coordination within the broader public sector is reported in some countries (for example, New Zealand).</p> <p>Norway uses a broader cross-sectoral coordinated approach based on "front runner" industries setting the benchmark for wage setting.</p> <p>Reflecting the high level of public provision, most countries reported direct or indirect government involvement in wage setting. In Portugal and the United Kingdom, the government is the main funder or employer of the hospital workforce.</p> <p>France, Portugal and the United Kingdom have an annual wage-setting cycle; Norway has a biannual process; in the other countries, the wage-setting cycle varies between 18 months and three years.</p>

Source: Buchan, Kumar and Schoenstein [5].



8.2.7 Measure the demand for health workers

The measurement of demand for health workers can be done through a series of indicators, which are listed and defined in order of easiness to measure: employment, job vacancies, compensation, turnover rate, hours worked, productivity and job quality.

- **Employment** corresponds to the number of individuals in paid employment (headcount), plus vacancies.
- **Job vacancies** indicate a mismatch between jobs offered and the availability of workers willing to accept them. This may be due to a shortage of qualified workers or a misalignment of the job profile with the expectations of workers, such as unattractive compensation or working conditions. Other possible causes include complex and protracted recruitment processes. The average time needed to fill a position also provides useful information about the seriousness of the vacancy issue.
- **Compensation and benefits** include the basic salary, plus the total-cost-to-company remuneration package, including overtime pay, bonuses, incentives, contribution to pension fund or social security, and any other benefits.
- **Job turnover rate** refers to the percentage of employees leaving the organization and replaced by new employees during a certain period. The rate indicates how frequently employers need to recruit new workers to maintain staffing levels: a higher rate signifies higher costs of recruitment and training, and extra stress placed on services due to disruption. A low turnover rate suggests a stable employment situation but does not necessarily signify a positive working environment; for instance, it can result from a context in which workers have few other options of employment.
- **Number of hours worked** serves to calculate full-time equivalence of employment. It corresponds to the ratio of total number of paid working hours to the number of working hours of a full-time employee.
- **Labour productivity** represents the total volume of output per unit of labour (measured in terms of the number of employed persons) during a given time reference period [6]. Labour productivity is often measured as lower in the health sector than in other sectors, an observation that needs to be interpreted with great caution, because it is difficult to measure outputs in health, for example number of consultations or length of stay. Also, output has to be measured in terms of quality [7].
- **Job quality** captures the extent to which the labour market supports the well-being of workers over the duration of their careers. Job quality reflects the non-monetary dimensions of the job that are valued by the worker, and is therefore multidimensional and context specific.

In sum, it is important to review the different dimensions of demand and not draw conclusions from a single dimension.



As GDP per capita is known as a major predictor of health care spending and hence the demand for health workers, forecasting spending on the health workforce should provide insight into the future aggregate demand for health workers.

8.3 Tools and sources of data and information for measuring demand for health workers

Major sources of data for measuring and assessing demand for labour can be grouped as follows: [a] labour force surveys; [b] job surveys; and [c] health facility or provider surveys. Administrative data sets are usually comprehensive in coverage of the population of health workers. They may have data on health workers by facility (for example, hospitals and their characteristics), but generally contain few data on health worker skills, productivity or performance.

8.3.1 Labour force surveys

Labour force surveys are typically the preferred source of information on employment. They usually cover the entire population of a country, all sectors of economic activity, and all categories of workers, including the self-employed, contributing family workers, casual workers and multiple jobholders. These surveys also allow disaggregation by sex, age and education levels, which is essential for understanding trends in employment along these dimensions. The use of the International Standard Classification of Occupations (ISCO) in the labour force survey allows data to be gathered on the distribution of health workers by occupation. In particular, different health occupations, such as physicians and nursing practitioners, are identifiable at the four-digit level [8, 9]. However, labour force surveys entail high costs; given the need to limit the sample size, disaggregation might be limited to broader categories, such as health and social services, and may not include details about health professional categories, such as doctors, nurses and pharmacists.

Labour force surveys are usually the primary source for data on employment status and the number of people with full-time or part-time jobs, or unemployed at a given time. They also gather data on compensation and benefits, assisting analysis of trends in average wages earned by sector, sex, age and education level. Labour productivity data are estimated using aggregate GDP figures for the sector (data from national accounts) divided by the number of employed persons in that sector (data from labour force survey). Data on full-time equivalents are also collected under labour force surveys, but accuracy and completeness of these data are difficult to achieve, even among OECD countries that regularly conduct labour force surveys.



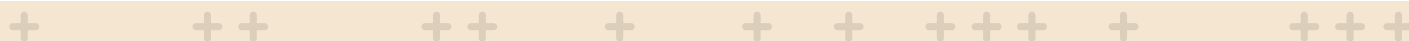
8.3.2 Job surveys

In many countries, national statistical agencies conduct surveys to collect data on job openings and labour movements to capture the flow of workers, in addition to labour force survey data on the stock of workers. An example is the Jobs Opening and Labor Turnover Survey (JOLTS), which is conducted regularly by the United States Bureau of Labor Statistics [10]. Data are collected from employers across all economic sectors on total employment, job openings, hires, resignations, layoffs and discharges, other separations, and total separations. These are essential data for analysing and assessing trends in job vacancies and turnover rates, which give important insights into the issues faced by employers in the recruitment and retention of workers.

Another important type of survey is job quality surveys, compiled annually by OECD for its member countries since 2005 [11]. These surveys organize country-level information by earnings quality, labour market security and the quality of the working environment [12]. The data can be disaggregated by sex, age [15–29, 30–49 and 50–64], and education level (low, medium and high), but not by sector. These data provide valuable insights into the quality of jobs in terms of how they contribute to the well-being of workers with different profiles. For example, OECD data show that younger workers and lower-skilled workers are more vulnerable to job insecurity and low compensation levels. Some of these indicators are collected in the health sector surveys, but they tend to be collected separately by professional group (doctors or nurses) or for only some of the indicators (for example, data on burnout and effects due to physical workload).

8.3.3 Health facility or provider surveys

Since general labour force and job surveys are less likely to provide disaggregated data at the health service level, more in-depth analysis requires surveys and studies conducted at the health facility level or with personnel data collected by health care associations, including registration bodies and trade unions. Where they exist, provider associations (hospitals, clinics, health centres) are good sources of data on job offerings, wages and skills requirements of their member organizations. Health facility surveys also offer potentially useful sets of data: many focus on measuring quality of care or management efficiency, but they often contain modules capturing data on job vacancies, staff turnover rates, and other measures of relevance to analyses of demand for labour. Management studies may include time and motion surveys to collect data on time use and allocation by different members of health care teams. When more in-depth analysis is required, purposive studies using qualitative research methods can be used to enquire into the specific challenges and issues faced by different categories of employers in matching their labour needs with the available supply of workers. In some countries, professional associations collect detailed information about the employment status



and working conditions of their members (Box 8.1 gives an example). These sources could be useful in providing insights into job availability and job quality.

Box 8.1 Medical Group Management Association surveys

The Medical Group Management Association (MGMA), a private United States-based entity funded through membership fees, undertakes surveys and data analyses and reports on its findings to help its members – health facility executives, personnel managers and professional jobseekers – to access critical information about the labour market situation in a timely manner. For example, the organization’s database provides up-to-date information on physician and non-physician compensation by specialty, geographical location and type of practice, including physician-owned, hospital-owned, and academic practices. The database offers a benchmark against which the organization or the professional can compare how they are faring in the marketplace. Benchmarks include:

- compensation: including total pay, bonuses and incentives, and retirement benefits
- productivity: work measured in terms of relative value units
- benefit metrics: hours worked per week or year, and weeks of vacation.

Based on these data, MGMA reported in 2018 that the growing physician shortage in the United States had led to an increased reliance on non-physician providers. Consequently, this had driven an increased demand for nurses, and in turn had led to a continuing increase in total compensation for non-clinical staff. In MGMA polling, 61% of respondents said their organization had experienced a shortage of qualified applicants for non-clinical positions in 2018.

“We’ve seen this trend continue across medical practices for several years now: demand for qualified staff is growing, while supply is shrinking ... Aging staff across the health care industry are retiring at a higher rate than new ones are trained to replace them. While medical practices of all sizes are struggling to keep up, many are trying to stay ahead of the curve by offering higher wages and more incentives to attract and retain the talent they need” [13].

The MGMA surveys offer an example of how a well funded entity can provide timely information and analysis on the health sector labour market for health care providers operating in a predominantly private sector-driven health care market.

Source: MGMA website (<https://www.mgma.com/>).

Given the complexity of labour market dynamics, before embarking on any major study on demand for labour, it is essential to narrow the focus of research to areas of priority policy concern. A well designed qualitative study can help researchers pinpoint the priority areas of concern for employers and formulate more precise research questions. Such bespoke or purposive data collection can directly address the research question. A key issue with surveys is their external validity and generalizability, so it is important to use appropriate sampling methods and survey weights to assess representativeness.

In the long run, countries need to develop a strategy for enhancing their standard reporting system using the National Health Workforce Accounts (NHWA) framework to systematize data collection and reduce the need for costly one-off studies [14]. Box 8.2 presents an example.



Box 8.2 Example of strategy for designing a demand for labour study

After identifying a particular issue, here is an example of a strategy for designing a study on demand for labour. The strategy revolves around the following three main elements: secondary data analysis, qualitative analysis and purposive study.

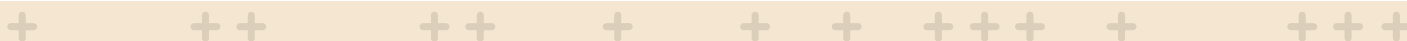
Secondary data analysis. Making use of the most recent available data, surveys and studies is a good starting point. These data should provide a broad overview of trends in the sector, and of how they compare with other sectors in terms of wages and unemployment rates, by sex and age distribution. The combination of the findings from different sources might offer insights into the dynamics of the health labour market. For example, if the labour force survey reports a significant number of unemployed workers in the health sector but at the same time government agencies are showing a large number of job vacancies, this would suggest a significant mismatch between the jobs on offer (demand) and the expectations of workers (supply). It will be important to identify the possible causes of this misalignment, for example the poor quality of jobs, inadequate compensation levels, or inadequate skills of the workers (skills mismatch). Within the context of low- and middle-income countries, an approach such as the Comprehensive HRH Assessment, Modeling and Planning Solution (CHAMPS) provides a methodology to analyse secondary data [15].

Qualitative research. The identification of general trends and policy issues through secondary data analysis is likely to raise more specific questions requiring further in-depth research. Before committing to a full-scale study, it is helpful to undertake qualitative research to refine the questions and formulate them into a more finely tuned set of hypotheses, after obtaining the views of a broad range of stakeholders (employers, managers, supervisors, workers, students, regulators, professional associations and informal sector workers). Open-ended interviews and focus groups with a wide range of stakeholders often lead to surprising and unexpected insights into the nature of the problem.

Purposive study. Finally, after going through the preceding steps of refining the questions and formulating the hypotheses, it is possible to undertake a more detailed study purposefully designed to respond to those specific questions and test the hypotheses. There is no blueprint to design such a study, as there are time and resource constraints to take into account. There are some important principles to maintain in designing and conducting the study: keep an open mind and be willing to listen to diverse points of view; use multi-disciplinary approaches to examine the problem; subject the questions to rigorous tests; and be transparent about the process and honest when the results are not clear.

8.4 Conclusion

The analysis of demand for health workers is important not only for a better grasp of the current state of the health labour market, but also for planning future health workforce requirements. This entails more than simply making projections, for instance of replacement needs. It also requires an assessment of future service needs, not only in terms of volume, but also in terms of how services will be organized and who will deliver them. Potential changes in the behaviour of health workers, for instance in terms of aspirations for a better work–life balance or increased mobility between jobs and location of practice, will affect supply and demand, and assessments will have to be adjusted accordingly. Employers who are responsive to these expectations will do better in terms of recruitment and retention.



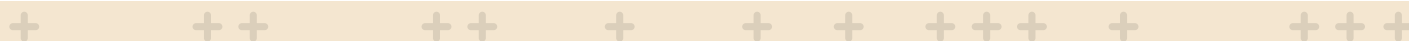
Demand analysis coupled with supply analysis are at the core of the understanding of health labour market dynamics; it is only through analysis of the interaction of supply and demand that the nature of labour market outcomes can be understood. The interaction between demand and supply is presented in Module 11.

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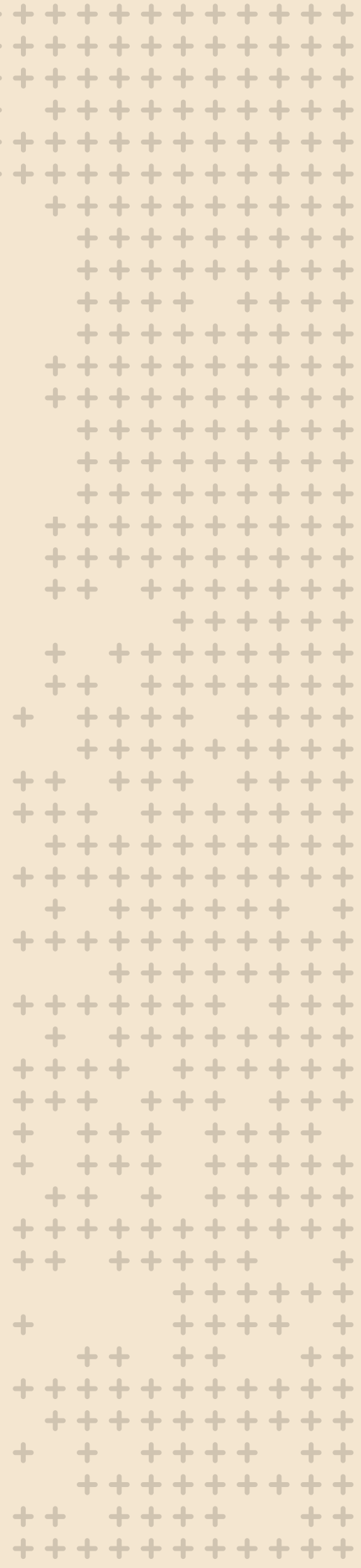
Section 3

Analysing overarching health labour market issues

Module 9 outlines important gender issues and considerations in the analysis of the health workforce and proposes frameworks, data, methods and approaches to integrate gender in such an analysis.

Module 10 offers guidance on how to analyse the workforce in the private sector and proposes different approaches to gain better information on the private sector workforce.

Module 11 reviews the different aspects of labour market mismatches as a means to better understand the complexities of labour market dynamics in the health sector. It also reviews methods and data sources for measuring the different categories of labour market mismatches, and offers guidance on general approaches to collecting and analysing data.



Module 9



Gendered dimensions of the health labour market

Summary

Ensuring that the analysis of the health labour market includes an intersectional gender approach is key to identifying areas of policy intervention that address the detrimental impacts of gender inequality among health workers.

This module goes beyond mainstreaming gender in HLMA to present methods and approaches for a gender analysis of the health workforce.

- First, it presents useful definitions for gender-related terms.
- Second, it presents an approach for identifying inequalities, gaps and disparities. The approach presented organizes gender power relations into five categories: who has what; who does what; time; how values are defined and expressed; and who decides.
- Then, key steps are presented for analysing and capturing gender issues related to the health labour market.
- Finally, useful variables and data sources for the analysis are presented.

9.1 Introduction

This module outlines important gender issues and considerations in the analysis of the health workforce and proposes frameworks, data, methods and approaches to integrate sex (as a biological construct) and gender (as a social construct) in such an analysis.

Gender gaps measured in labour markets are pervasive globally. In 2018, the men's labour force participation rate was, on average, 75% across the world, whereas the women's rate was 48%. The variation in the rates of men's participation across income groups ranges from 68% in high-income countries to 79% in low-income countries. The variation in labour force participation rates for women is more pronounced, ranging from 36% in lower-middle-income countries to just over 50% in upper-middle-income and high-income countries and to 64% in

low-income countries [1]. Sex- and gender-based restrictions on employment for women and constitutional provisions in family and personal law are still common in many countries across the world. Out of 189 countries, 104 place restrictions on women's employment; for example, 29 have restrictions on night work for women, and in 18 married women cannot work outside the home without the permission of their husband [2]. Such restrictions are one of the more visible ways in which gender impacts the health workforce.

In addition, there remain other dimensions of gender equity that are not measured and are unexplained. The ways in which gender is socially constructed shape the expectations of what constitutes masculinity and femininity – for example, women are perceived to be more caring, more empathetic or better at communicating than men – which can influence the types of roles that women and men play in the workforce [3]. Women form the majority of health and social workers, holding around 70% of jobs. However, they only hold around 25% of senior leadership roles in health and social care [4]. Women are often segregated into lower-status, lower-paid roles compared to men. In the health sector, the gender pay gap is estimated to be approximately 28% [5]. This is higher than the estimated 22% gender pay gap observed across all sectors combined.

Gender can also influence other labour market outcomes, such as those related to human capital formation, location of practice, and job satisfaction. For example, a four-country study (Cambodia, Sierra Leone, Uganda and Zimbabwe) found that gender roles affected attitudes to rural deployment of health workers, and women in all contexts faced particular challenges in accessing both pre- and in-service training compared to men [6]. A six-country study (Chad, Côte d'Ivoire, Jamaica, Mozambique, Sri Lanka and Zimbabwe) found that nursing and midwifery personnel who were women were significantly less likely than men to access in-service training, despite the lack of any explicit gender-based policy [7]. A 2018 synthesis of global empirical research and literature identified the ways in which gender norms and power relations shape close-to-community providers' experiences and interactions at individual, community and health system levels. Key issues identified were career progression, remuneration, safety and well-being [8].

Health care work done by women is largely undervalued; often it is unpaid and unrecorded. Some estimations suggest that unpaid contributions amounted globally to US\$ 1.5 trillion in 2010 [9]. Addressing the gendered dimensions of the health labour market offers significant opportunities to scale up and strengthen its capacity to meet the challenges of changing demand and global needs in pursuit of universal health coverage. Health systems will be stronger when women, who deliver the vast majority of health care services, have an equal say in the design of national health plans, policies and systems.



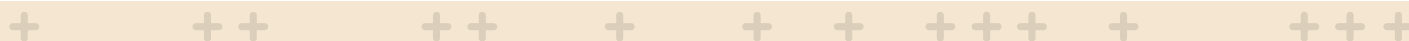
Commitments to address gender inequality in the health and social workforce and to promote equal opportunities in education, development, management and career advancement for all health workers have been made at the highest level, for example by the High-Level Commission on Health Employment and Economic Growth [10] and the Political Declaration of the High-Level Meeting on Universal Health Coverage [11]. In addition, the international community has committed to “ensure women’s full and effective participation and equal opportunities for leadership at all levels of decision-making in political, economic and public life” [SDG target 5.5].

Gender is included in the broader societal drivers that span the entirety of the health labour market and therefore needs to be considered throughout an HLMA, along with other stratifiers such as age, class, education, ethnicity, migration, civil status and place of residence. An understanding of gender, its intersection with other personal identity stratifiers, and the origins of gender norms, roles and relations is essential knowledge for a comprehensive HLMA [12].

The objective of this module is to highlight the importance of mainstreaming gender in HLMA by introducing the key gendered issues that HLMAs should aim to address, and to introduce an approach for gender analysis in the health labour market.

9.2 What is a gender analysis?

A gender analysis is a systematic study of the differences in roles and norms for women, men, girls and boys, the different levels of power they hold, their differing needs, constraints, and opportunities, and the impact of these differences in their lives [13]. First, it is important to have a clear definition of gender and its related terminology. **Box 9.1** introduces the accepted terminology to discuss gender issues.



Box 9.1 Useful definitions of gender-related terms

Gender. Socially constructed identities, attributes and roles for women and men and society's social and cultural meaning resulting in hierarchical relationships between women and men and in the distribution of power and rights. This social positioning of women and men is affected by political, economic, cultural, social, religious, ideological and environmental factors and can be changed by culture, society and community.

Gender discrimination. Any distinction, exclusion, or restriction made on the basis of socially constructed gender roles and norms that prevents a person from enjoying full human rights.

Gender equality. A situation in which groups of women and men have equal chances or opportunities to access and control social, economic and political resources, including protection under the law.

Gender equity. Fairness in responding to the different needs, preferences and interests of women and men. This may mean that different treatment is needed to ensure equality of opportunity. This is often referred to as substantive equality (or equality of results).

Gender equity in the workforce. A situation in which women and men can enter the health occupation of their choice, develop the requisite skills and knowledge, be fairly paid, enjoy fair and safe working conditions, and advance in a career.

Gender norms. Beliefs about women and men, boys and girls that are passed from generation to generation through the process of socialization.

Gender relations. Social relations between and among women and men that are based on gender norms and roles.

Gender roles. The activities in which men and women are expected to participate (in the household, community and workplace) in a given society. These change over time and differ in different cultures, contexts and populations.

Mainstreaming a gender perspective in health is the process of assessing the implications for women's and men's health of any planned action, including legislation, policies or programmes, in any area and at all levels.

Occupational segregation by gender. This takes two forms: vertical segregation, which occurs when men occupy more senior roles than women in a particular field; and horizontal segregation, whereby men and women are distributed into different occupational roles and sectors.

Sources: WHO [4, 14], Williams [15], United Nations [16].

These concepts form the key ingredients of intersectional gender analyses of the health labour market.

Structural and social barriers, for example conscious or unconscious discrimination (such as that based on gender, pregnancy or maternity status, family responsibilities, ethnicity or age), bias, pay gaps, workplace violence and harassment, all negatively impact health workforce demand, supply, quality and efficiency. These are sources of occupational segregation by gender, driven by stereotyping in particular in education choices and opportunities.



A health workforce gender analysis goes beyond disaggregating indicators by gender and commences with identifying inequalities, gaps and disparities in a particular context by collecting information and data on gender roles, relations and identities related to the health workforce. Nonetheless, the entry point for gender analysis is sex-disaggregated data, but alone they do not constitute a gender analysis [17]. In addition, data need to be disaggregated by other stratifiers of interest. Taking an intersectional approach is important when assessing labour market outcomes. Therefore, at a minimum, gender should be analysed alongside education, age, ethnicity and rurality. Next, information collected on gender differences needs to be analysed to determine gender-based constraints and opportunities and their implications for the supply of and demand for health workers.

In short, a highly gender-segregated global health workforce fails to capitalize on the pool of talent available across all occupations and contributes to shortages and other health workforce imbalances [4].

9.3 Methods and approaches for gender analysis of the health labour market

The inclusion of gender in an HLMA should be a cross-cutting matter that covers all dimensions of data capture, research, analysis, policy, implementation and accountability.

Frameworks for gender analysis, such as that proposed by Tannenbaum, Greaves and Graham [18], can facilitate a question-led intersectional gender analysis. This approach has been recently developed further as a framework for the analysis of global health issues [19]. It organizes gender power relations into five categories [Box 9.2]: who has what (access to resources); who does what (the division of labour, roles, and everyday practices); time (allocated to different activities, such as unpaid care or training); how values are defined (social norms, ideologies, beliefs and perceptions); and who decides (rules and decision-making).

These dimensions are interrelated and reinforce and influence one another; a gender norm regarding what is appropriate for women or men will influence the division of labour within and beyond the household, for example who is responsible for childcare and who works outside the home. Question-led approaches such as these allow an examination of intersections at different levels. Such an approach should be applied to each of the elements of the health labour market, and incorporated into policies to shape them [Boxes 9.2 and 9.3].



Box 9.2 Gender in the health workforce question matrix: education market

Who has what?

Who has access to education, knowledge tools, training, skills, services, childcare and social support, public spaces, social capital, financial means, student loans and bursaries, transport?

Who does what?

What do women and men (the old, adults and children) do? Where does it take place?

At the household level, consider unpaid care, responsibilities, norms around appropriate careers by gender.

Time – who does what and for how long?

School hours, unpaid care hours, duration of training, number of years to attain a degree or diploma, at night or during the day.

How are values defined and expressed?

Social norms, ideologies, beliefs, religion, perceptions, national-level education policies and international conventions, laws and constitutions.

Who decides?

Legislative and constitutional, rules and decision-making within the family, power brokers at community level.

Box 9.3 Gender in the health workforce question matrix: labour market

Who has what?

Who has access to education, resources, assets and benefits: equipment, skills, services, childcare and social support, social capital, remuneration and income (gender pay gap), transport, leadership and decision-making posts?

Who does what?

What do women and men (the old, adults and children) do? Where does it take place?

What is the division of labour and roles in the health system? Are health occupations segregated by gender? Are there unpaid care roles (household-level caregiving), and who performs these? What is the prevalence of violence and harassment in the health workplace? Who represents the community at decision-making levels (health ministry, health care provider organizations)?

Time – who does what and for how long?

How is time allocated – working hours, unpaid care hours, duration of contract, number of years in job, work at night or during day?

How are values defined and expressed?

How are social norms, ideologies, beliefs, religion and perceptions, national-level policies and international conventions, laws and constitutions defined and expressed? How do ideologies, stereotypes, bias and discrimination manifest in the health workforce (are the "maternal wall", the "glass ceiling", or the "glass escalator" evident)?

Who has power and decides?

Legislative and constitutional, rules and decision-making power, health workforce hierarchies, leadership, influencers and power brokers from community to ministry levels. Is gendered power a factor in violence and harassment?

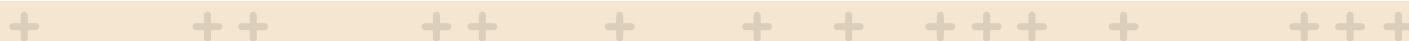
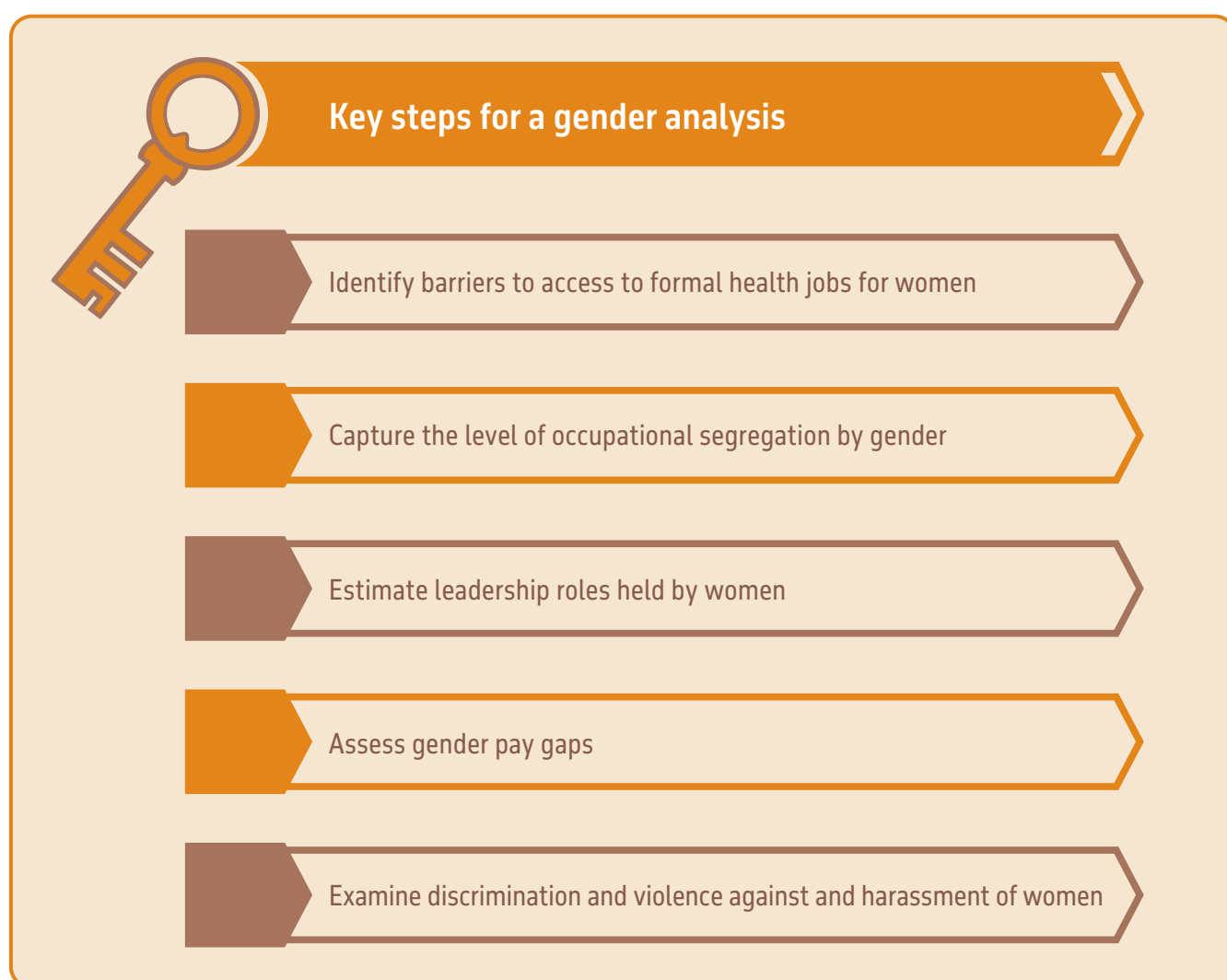


The above are examples of how gendered items can be developed in response to a question-based method that orbits around the key gender issues in an HLMA. Such question matrixes form the basis of an intersectional analysis, and each question needs to be responded to using data that are sex disaggregated and gender oriented. Key additional stratifiers for workforce analysis include education, age, geographical location and ethnicity.

9.4 Key steps for analysing gender and its impact on the health labour market

Gender analyses raise many policy questions relating to how best to address barriers and strengthen opportunities for ensuring that the supply of and demand for health workers meet the needs of the health service system. Gender-related issues observed in the health workforce can be wide ranging, based on context. As depicted in [Figure 9.1](#), five steps are key for analysing gender in the HLMA.

Figure 9.1 Key steps for a gender analysis



The barriers identified in **Figure 9.1** can pose major obstacles to women's access to the labour market, and therefore need to be analysed, particularly when women's labour force participation rates are low.

9.4.1 Identify barriers to access to formal health jobs for women

Social barriers

Gendered stratifiers of the health workforce present a complex picture of intersections and manifest themselves in a range of policy challenges and opportunities. This demands an analysis of the norms, roles and relations that act as barriers and enablers to recruitment, retention and promotion across the different areas of employment in order to maximize the quality and efficiency of the workforce, and ultimately of the provision of services. Examples are as follows.

- Gender stereotypes apply to men, women and gender-diverse persons and can work against men's active participation in caregiving occupations and in exercising care responsibilities within their families.
- Social norms and cultural traditions may constitute barriers to human capital formation by girls and women – notably in the form of barriers to education.
- Skilled and trained women health workers may also face social barriers or high unpaid care responsibility, which can impact ability to enter or remain in the labour market.
- There are examples where access to medical education does not result in increasing the number of practising women doctors. In Pakistan, 70% of medical students are women, yet it is estimated that half of them will not pursue medicine following graduation. "Parents perceive the medical degree as a 'safety net' should something go wrong with the marriage, rather than a step toward a medical career" [20].
- In Goa, India, a 2013 study found that women candidates represented the majority of medical school graduates, but only 41% of them were actually active in the labour market [21].

Unpaid care

"Societies rely to a varying extent on the unpaid labour of informal carers who cover an estimated 70 to 95 percent of all care needs" [22]. Most unpaid care is done by women. It is estimated that half of the women forming the base of the health workforce pyramid worldwide are unpaid, as voluntary workers (for example, community health workers) or as unpaid carers of family or other community members. Women constitute a crucial, but undervalued, resource in places where there are significant human resource shortages [9, 23].



- Unpaid care by women in the health sector could be valued at 3.09% of the global economy, thereby invisibly subsidizing health systems and the economy [9]. An International Labour Organization (ILO) survey in 64 countries showed that 16.4 billion hours are spent in unpaid care work every day, equivalent to 2 billion people working 8 hours per day with no remuneration [24]. This “invisibilization” means that national approaches to understanding the supply of and demand for health workers must endeavour to find ways to record, measure and value this very significant contribution.
- The HLMA should look at whether workforce policies throughout the career life cycle enable men as well as women to take on caring roles through, for example, shared leave policies for family responsibilities, including parental leave. Examples of such policies are access to job protection and paid parental and family caregiving leave, and laws protecting against sex-based discrimination and sexual harassment at work, accelerating pay equity and social protection entitlement by gender.
- The HLMA should examine whether labour market policies reduce barriers to social security for women and remove visible and invisible barriers to participation, for example by removing barriers to full-time employment for women or ensuring those on part-time contracts receive benefits.

9.4.2 Capture occupational segregation by gender

Horizontal and vertical occupational segregation by gender is pervasive in the health workforce. Vertical segregation is reflected in, and reinforced by, leadership gaps. Horizontal occupational segregation by gender is the reflection of gender norms and stereotypes of jobs culturally labelled “men’s” or “women’s” work [4].

- Occupational segregation by gender is driven by unequal access to human capital formation.
- Occupational segregation by gender is more prevalent in the health sector than in many other sectors, but it is changing.
- In most OECD countries, in medicine [25], pharmacy [26] and dentistry, the number of women entering education programmes is superior to that of men. Women are already a majority in the under-40 age group of these professions [5]. Some high-income countries lag behind, for example Japan and the Republic of Korea, where the proportion of women physicians is around 20%; at the other extreme, in Estonia and Latvia, this proportion is over 70%. In low- and middle-income countries, the proportion of women physicians is still generally low, but it is increasing thanks to better access to medical education for women [27].
- Data from countries such as Canada and France show that the share of women doctors tends to be greater in general medicine and in “soft specialties” (such as paediatrics or public health) than in higher-paying specialties (surgery, orthopaedics or neurology) [28].
- Approximately 90% of the nursing workforce is women [29].



- Women occupy many of the roles that are lower paid and hold less decision-making power, such as auxiliaries, carers or community health workers.

9.4.3 Leadership roles held by women

“Having gender equality in global health leadership refers to women and men having equal access to leadership positions, without norms, prejudices, discrimination, legislature or other standing in the way. Equal leadership means equal representation, power, rights and influence between genders” *[30]*.

- A leadership gap is often referred to as vertical segregation by gender.
- It is often driven by limited access to human capital formation and by social norms, biases and expectations.
- Women are underrepresented at all levels of governance, leadership and decision-making in the public and private health sectors, for example ministries, global health agencies, NGOs, education care delivery institutions, and professional councils and associations *[4]*.
- Women who are not accessing leadership positions will be earning less than men who do, which will be reflected in gender pay gaps.
- Lack of diversity in leadership may reflect failures in the search for and matching of leadership posts and could signal a skills mismatch, whereby women are not gaining the skills and competencies needed for these roles, resulting in a vertical skills mismatch.
- A gender leadership gap might also result in women with leadership skills regarding the health sector as unattractive. It can lead to the attrition of capable women if they are unable to access leadership posts.

9.4.4 Assess gender pay gaps

Pay systems that are not transparent and that do not reward the entire workforce fairly send a negative message about the sector’s values and ways of working. Pervasive pay gaps can lead to a reduction in the attractiveness of the sector to some social groups and to a reduction in productivity.

- A synthesis of data from 51 labour force surveys reports that men earn 28% more than women in the health sector on average, and a gender pay gap of 11% persists after adjustment for occupation and hours worked. The gender pay gap in men’s favour is near universal. A 13% pay gap was observed for physicians and a 12% pay gap for nurses and midwives *[5]*.
- Chief among factors that contribute to the observed gender pay gaps is occupational segregation by gender, followed by differences in hours worked, women’s underrepresentation in senior positions, fewer opportunities for career advancement and gender discrimination.



9.4.5 Examine discrimination and violence against and harassment of women

Violence against women health workers is a largely neglected but extremely harmful abuse of power. Effective action requires acknowledging this issue and tackling the gender power relations undermining health worker safety, well-being and ability to deliver quality care [31].

- Workplace violence and sexual harassment are widespread, though few countries and health service organizations keep systematic data. There is a clear link between safe and respectful working conditions and the retention of workers. Violence and harassment harm women disproportionately more than men, limiting their ability to do their job and causing attrition, low morale and ill-health [4].
- Effectively addressing violence against women health workers requires going beyond acknowledging risk factors to tackling the underlying gender power dynamics that mark the health workforce [31].
- Gender biases, discrimination and inequities exist in the health workforce. Women are more likely than men to be in part-time roles and insecure work. They are less likely to be unionized and have less access to collective bargaining, which weakens their employment position [4].
- Differences between men and women in average hours worked are observed across all health occupations. These are often attributed to gendered patterns in job precariousness as well as work–life balance and domestic responsibilities. For example, labour force surveys in 56 countries showed that, compared to those working in those occupations who are men, physicians who are women worked on average 4.2 fewer hours per week, dentists who are women 3.6 fewer hours, pharmacists who are women 4.2 fewer hours, and nurses and midwives who are women 3.5 fewer hours [5].
- An HLMA should look at whether there exist policies promoting gender equality in health, education and workplaces, such as parental leave, flexible and part-time work and equal pay.

9.5 Data sources and data collection tools

National workforce planners need to collect appropriate workforce data disaggregated by gender to identify patterns and trends and provide the evidence base for health workforce planning.

To respond to the question-led approach above requires quantitative and qualitative data collection. **Table 9.1** lists useful variables and potential data sources. Data and information mentioned in **Table 9.1** are relevant across the entire process, not only for a gender analysis. These are subject to the same pros and cons of all methods and data collection tools across the HLMA.



Table 9.1 Useful variables and data sources

Level of analysis	Variables/indicators	Data sources
Quantitative data		
International	Adherence to international conventions Placing in global gender indices	World Bank, Inter-Parliamentary Union, OECD, ILO, Office of the United Nations High Commissioner for Human Rights, Convention on the Elimination of All Forms of Discrimination against Women, World Economic Forum, United Nations Development Programme
National	Population and sex/gender ratios Applications, acceptance, enrolment (including enrolment in health education) by sex/gender Education attainment by sex/gender Political positions occupied by women Labour force participation (total and health sector) rates by sex/gender	National population census Official government labour and education statistics
Health work-force (public and private sector)	Number of workers per occupation by sex/gender Data on working hours (e.g. full-time equivalence) by sex/gender Type of employment (paid, unpaid, full time, casual, contracted, self-employed) by sex/gender Level of seniority/leadership posts by sex/gender Number and profile of service providers and employers by sex/gender Retention, new entry, re-entry, attrition, and promotion by sex/gender Occupational earnings by occupation by sex/gender Health worker occupational safety incident reports by sex/gender	Labour statistics Ministry of health statistics Provider registry and databases NHWA Human resources or HIS data, ministry of education Workplace health and safety reporting systems Labour force surveys
Population health	Primary causes of death and premature death by sex/gender Maternal, newborn and child mortality, burden of noncommunicable diseases, HIV, tuberculosis, malaria and infectious diseases, injuries and mental health by sex/gender Service utilization by sex/gender Sexual and reproductive health service availability and utilization	National statistical agencies Ministry of health Global Health Observatory (WHO) Institute for Health Metrics and Evaluation



Level of analysis	Variables/indicators	Data sources
Qualitative data		
National	Legal rights for women and men in the workforce; policies to accelerate gender equality and non-discrimination Extent of implementation of international commitments to gender equality and women's empowerment Extent of gender mainstreaming in government health policy Political leadership's perceptions of barriers to and enablers of gender mainstreaming in health workforce policy Community's perceived barriers to and enablers of gender equity Forms of gender bias, discrimination and inequality	Policy analysis Key informant interviews Published and grey literature Focus groups Surveys
Health system	Health workers' and managers' perceptions of gendered barriers to and enablers of entry, career progression, retention, and leadership by sex/gender Health workers' and managers' perceptions of safe and inclusive workplace by sex/gender Health workers' and managers' perceptions of working conditions by sex/gender Preferences for work-life balance and working conditions by sex/gender	Key informant interviews Job quality surveys Published and grey literature (research reports) Surveys Focus groups
Community	Household and community perceptions of roles and expectations of the provision of health care services by men and by women Preferences in relation to sex/gender of health care provider Local gender norms	Key informants Focus groups Published and grey literature Surveys

Mainstreaming sex and gender into national statistical systems should occur throughout the process of producing statistics, from the development of concepts and methods of data collection to the presentation of results. This implies training staff in gender statistics collection and analysis and encouraging dialogue between offices of statistics and civil society stakeholders, such as women's groups, health professional associations, and community health collectives. Gender advocates can enable additional data to become visible and usable.



A combination of quantitative and qualitative methodologies generates a richer understanding of the gendered dimensions of the health workforce. Official statistics can be supplemented with data from focused surveys, semi-structured and in-depth interviews and focus groups.

Quantitative data alone will not get at the underlying gender dimensions of the health workforce and so qualitative data are required. This means new data collection. Whilst often more costly and time consuming to collate, these data are vital to establish the current situation and provide the level of detail and granularity from a social science perspective that can make macrolevel modelling more predictive and accurate.

9.6 Conclusion

No country has yet achieved gender equality, and inequities in the health workforce mirror other pervasive gender barriers in society. Ensuring that an HLMA includes an explicit gender analysis is a key step towards identifying areas of policy intervention that can address the negative impact of gender inequality on the health service system.

Continual reform of health workforce governance and human resource management in ways that address gender inequalities can contribute to strengthening the supply and performance of quality health workers. Ensuring that human and labour rights conventions that specifically deal with women's rights and empowerment are implemented, and that antidiscrimination, sexual harassment and equal opportunity policies and laws are enforced, promotes equality and dignity in the workplace everywhere and in the health sector in particular. Promoting policies such as parental leave, flexible and part-time work and equal pay can have multiplier effects on recruitment and retention of health workers, and thereby improve access to health services and progress towards universal health coverage. To ensure that intersectional gender evidence is used for policy development requires dialogue and communication with policy-makers. When the progress of gender mainstreaming is slow, it may be necessary to introduce corrective mandatory measures, as is increasingly required by development organizations.



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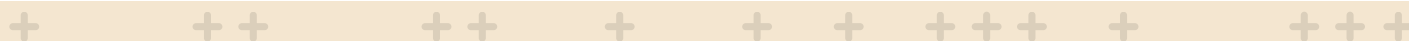
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Module 10



Analysing the health workforce in the private sector

Summary

In most countries, it is challenging to collect information on the number and profile of workers active in private services. Nonetheless, a comprehensive HLMA must cover all workers providing health services in the country, including those working in the private sector.

This module offers guidance on how to analyse the health workforce in the private sector and proposes different approaches to gain better information on the private sector workforce.

- The module starts by stating the need for an analysis of that component of the health labour market, and by defining what "private" means.
- This is followed by a discussion of supply of and demand for workers in the private sector and their determinants.
- The next section identifies key issues specific to the private health workforce, including the role of regulation in addressing them.
- The last section is devoted to methodological aspects of the collection of data and information.

10.1 Introduction

Part of the health labour market is in the private sector. However, in most countries, little information is available on the number and profile of workers active in private services. A comprehensive HLMA must cover all workers providing health services in the country. This module offers guidance on how to analyse the workforce in the private sector, and how to access data and information to do so.

There are different views of the role of the private sector in health care systems and of its impact for patients in terms of accessibility, acceptability and equity. It is therefore critical to capture, assess and monitor how the distribution of health workers in the private sector affects the geographical accessibility of health care services, and how wage differentials and differences in working conditions between the public and private sectors affect the mobility and professional decisions of workers. An important particularity of health labour markets is dual practice by some categories of health professionals who work simultaneously in both the public and private sectors. Policy-makers must carefully consider the implications of dual practice for the equity of access to health workers.

The assumption that private providers primarily serve the high-income and educated share of the population is common; however, studies consistently show that low-income populations also use the services of private providers [1]. This is the case when public services are not accessible, in geographical and even financial terms, or when their quality is perceived as low; using private services then becomes the only or the best option [2].

It is also important to understand the dynamics of the relationship between the public and private sectors in terms of four dimensions: the availability of health workers (number of workers, skills mix); their accessibility (for example, when physicians refuse work in poor regions because of the absence of a private market that would help complement their income); their acceptability (for example, when workers in one sector are perceived as providing superior care); and their quality (for example, when regulation of private work is weak).

The private sector also plays a role in shaping the health labour market through advocacy and political means. It is therefore important to identify the key stakeholders in the private sector. This helps to understand its role and influence. In different countries, the number, type and influence of private sector stakeholders will vary, and may include any or all of the following: managers, staff, students of private educational institutions, accreditation bodies, faith-based organizations, health professional councils, associations, trade unions, networks or chains of private hospitals, government ministries (health, education, labour), agencies, insurers, and funders.

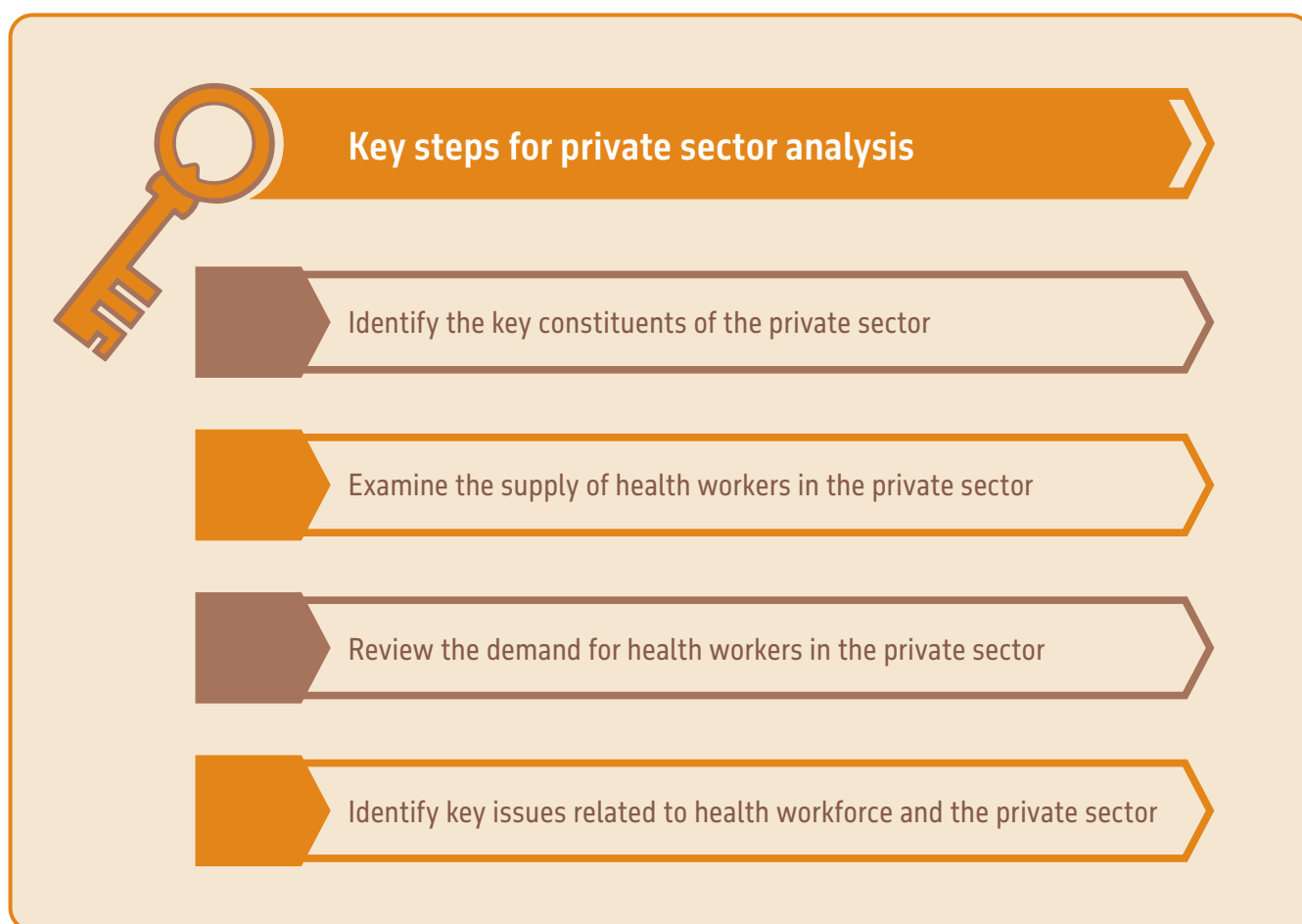
Private education has often been advocated as a means to increase the production of health workers and to address shortages, especially in countries where public health education investments and human capital investments are low. However, the rapid rise of private education is also a source of concern if unregulated, with questions related to the quality of training, to the relevance of programmes from a public health perspective, to inequity of access to studies due to high fees, and to a lack of social accountability [3].



10.2 Key steps to analyse the health workforce in the private sector

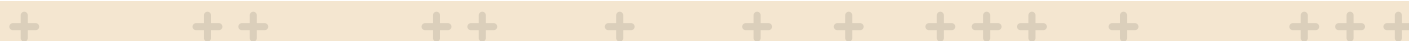
This section presents the key steps to analyse the health workforce in the private sector, as depicted in **Figure 10.1**.

Figure 10.1 Key steps for analysing the health workforce in the private sector



10.2.1 Identify the key constituents of the private sector

The private sector comprises for-profit and not-for-profit health care organizations. For-profit providers include health centres, clinics, general and specialized hospitals, and nursing homes. They also include self-employed doctors, dentists, pharmacists, nurses providing home care, and a range of specialized practitioners, such as physiotherapists, audiologists, speech therapists, nutritionists, and chiropractors. Not-for-profit organizations include nongovernmental, humanitarian, charitable and faith-based organizations.



In general, the public sector tends to be more tightly regulated and monitored. For instance, it employs or contracts workers who are formally trained and recognized, through licensing in the case of the more qualified [such as physicians, dentists, pharmacists, and nurses], or through formal employment status for other practitioners [auxiliaries, assistants, orderlies, and community health workers]. The private sector may include, in addition to the workers already mentioned, complementary and alternative practitioners who offer non-allopathic medical services, for example acupuncturists, reflexologists, and AYUSH (ayurveda, yoga and naturopathy, unani, siddha and homeopathy) practitioners. In low-income countries traditional midwives, faith healers, and medicine sellers are present, serving populations with little access to trained workers. In addition, in some countries, there are even high numbers of unlicensed and untrained individuals working in the private sector posing as doctors, nurses and pharmacists [4-7]; regulations exist to prohibit their practice, but they are not always applied, particularly in isolated regions.

In countries where health services are funded by the government budget, as in Canada and France, or the general practitioners in the United Kingdom or the United States (Medicare, Medicaid), most physicians remain independent private entrepreneurs while providing a public service. There are also private workers delivering public services under public-private partnership contracts (for example, through surgery or dental vouchers in Portugal).

The private sector's connection with the health labour market also includes private educational institutions. Some are for-profit; others are not and have a public mission. For example, in Canada, medical schools are located in universities that are autonomous and have a private status, but the government funds them and they are considered as public service institutions.

10.2.2 Examine the supply of health workers in the private sector

The main sources of the supply of health workers active in the private sector are national educational institutions and foreign-trained workers, as for the public sector. In addition, there are workers from public provider organizations who also work in private organizations.

The education domestic pipeline

- **Public education pipeline.** Some graduates from public education choose to work in the private sector. This includes individuals who wished to work in the public sector but did not find employment.
- **Private education pipeline.** Usually, graduates from recognized private institutions have the option of working in the public or the private sector. There are exceptions, as in Morocco, where only nurses graduating from public nursing schools have access to jobs in public services. In recent decades, there has been a rapid expansion in the number of private medical and nursing schools, in particular in low- and middle-income countries. In



some countries, the number of private schools (not all are for-profit) already outnumber public medical schools. Examples are Bangladesh, where 82% of all health professional educational institutions were private (including 69 of the 99 medical schools) in 2016 [8], and Brazil, where 136 of 241 medical schools were private in 2014 [3].

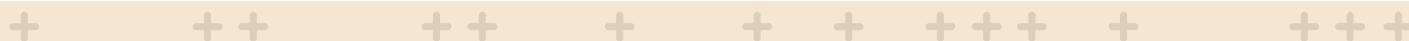
Foreign-trained workers

- In many countries, immigration of already trained workers is a major source of supply. There are independent migrants (coming on their own looking for a job), those recruited by specialized agencies serving as intermediaries, and those directly recruited by a provider organization.
- Nationals trained abroad (for example, in programmes for foreigners in central and southern Europe and in the Caribbean) may return to their country of origin to practise. In the European Union, the free movement of persons and the directive on mutual recognition of diplomas facilitate their return.
- There is also an increasing trend of nationals moving to a country to study (gain educational qualifications) and then move to a third country.

The characteristics of the private health workforce may differ from the public health workforce with respect to its volume, composition (age, sex and occupation), distribution by level of care, type and location of provider organization, conditions of employment, and quality. Data from 104 countries on the share of the health workforce by sector (public or private) indicate that for highly paid occupations, such as physicians, men are more frequently employed in the private sector than women (49.2% versus 39.2%). However, it is the contrary for low-paid jobs, such as personal care workers, where 81.9% of women work in the private sector and 53.0% of men [9]. As for location, private providers, notably private not-for-profit NGOs, are often the main providers of health care in rural areas.

Factors that influence the supply of health workers in the private sector vary in accordance with the economic and political context of the country, the importance of the role of public services in the provision of health care, and health workforce policies in place. In resource-poor countries, health workers' decisions to enter the private sector are quite different from those of workers in high-income countries. The following are some of the factors that impact the size and composition of the private sector.

- **The volume or share of expenditure on public health services.** The lower that is, the higher will be the private supply of health workers, as the number of public jobs offered will be inferior to the number of jobseekers. In recent years, many countries have adopted policies of replacing only part of the workforce going into retirement, which reduces demand for public sector workers.



- **Policies that promote (explicitly or implicitly) the expansion of the private health sector.** Such policies may include those that promote public-private partnerships.
- **Barriers to access to the public sector.** These include the absence of job openings in the public sector for certain categories of workers, such as dentists, pharmacists and physiotherapists, and the exclusion of graduates of private schools. In Portugal, the National Health Service employs fewer than 50 dentists, whereas 9385 were registered as active in 2019.¹⁴
- **Attractiveness of certain working conditions.** For some professions, remuneration tends to be higher in the private sector, which can also provide a lighter workload and more flexibility in the number of hours worked.
- **Preference of workers for independent practice.** Some workers, dentists for instance, may value being “their own boss”.

10.2.3 Review the demand for health workers in the private sector

The demand for health workers in the private sector varies according to several factors, including type of employer, job and employment conditions, and other factors.

Type of employer

The main categories of private employer are:

- **Private providers of clinical services.** Examples include hospitals, clinics, and more rarely health centres, including single organizations and networks. Some are for-profit (such as HCA Healthcare, with 185 hospitals in the United States and the United Kingdom, Apollo Hospitals in India, and Helios Healthcare in Germany, Spain and Latin America); others are not-for-profit (such as Confederação das Santas Casas de Misericórdia e Hospitais Filantrópicos in Brazil, with 2172 hospitals, the Christian Health Association of Ghana, with 302 health facilities and health training institutions, and Ascension Health, a Catholic network of 151 hospitals in the United States).
- **Organizations providing humanitarian or emergency medical services.** Examples include Médecins Sans Frontières, Médecins du Monde, International Medical Corps, and Assistência Médica Internacional of Portugal.
- **Organizations employing health workers for non-clinical work, such as research and project management.** Examples include international agencies (WHO, UNICEF, United Nations Population Fund (UNFPA), World Bank, International Red Cross and Red Crescent Movement), NGOs and the pharmaceutical industry.
- **Self-employed.** Examples include practitioners running and managing their own practice.

¹⁴ <https://www.ond.pt/content/uploads/2019/09/no2019pt.pdf>.



Key employment characteristics

Employment status, working conditions and location are likely to differ between health workers in the public sector and those in the private sector. For instance, private workers generally do not have access to the same security of employment and pension rights enjoyed by public workers. Private workers are less likely to be unionized and protected against firing or termination of employment. Differences also prevail within the private sector, notably between the private for-profit and private not-for-profit organizations, which can experience variations in wages and degree of worker motivation.

Working conditions can be better in the private sector in terms of the quality of equipment and of the workplace, as is the case in facilities catering for wealthy clients, but it is not always the case. While remuneration in the private sector is often a key incentive for attracting doctors, this is not necessarily true for all other health professions. In countries such as India, Portugal and Tunisia, remuneration and benefits of nurses are more advantageous in the public sector than in the private sector.

In most countries, for-profit private hospitals and clinics tend to be in affluent urban areas, where there is a market for their services. In rural, remote and poor urban areas, the health labour market is more likely to include workers employed by not-for-profit providers and self-employed doctors, nurses and small private outpatient clinics and dispensaries.

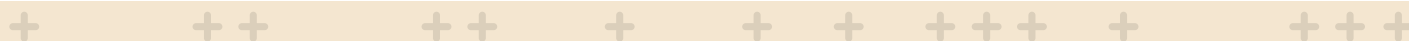
Factors that influence demand for health workers in the private sector

Demand factors include:

- type of health care system
- gaps in the coverage by public services, access problems
- users' demand (better access, perceived higher quality)
- pressures by some stakeholders (such as insurers, professional associations).

Depending on the design and regulation of the health care system, the scope and role of the private sector and its workforce will vary. Some countries rely heavily on the public sector to deliver health services, others rely less as a policy choice, as in the case of the United States. Many countries adopt a mixed approach that presents the private sector as complementary to the public sector. The number of such countries has increased in the context of the financial crisis that started in late 2008, as they tried to control public expenditure. There are variations in how the private provision of health services is made available, ranging from leaving the market fully open to imposing limits to which services can be offered (for example, only services not covered by the public system).

In many countries, the public sector offers services nominally free of charge or at low cost to the population, but without investing enough to meet demand. As a consequence, significant



gaps exist in terms of services covered, and access is limited. Some services are simply not available (such as dental or rehabilitation services), others that are nominally available are not because of equipment failures, absence of personnel, strikes and long waiting times. There may be a perception, based on facts or not, that services delivered by health workers in the public sector are of lower quality. In this type of context, the demand for private services is likely to increase, which in turn stimulates the opening of private jobs.

In many instances, professional associations, health insurance firms, consumer organizations, parents and students' representatives and other stakeholders advocate the expansion of the private sector, resulting in an increase in demand for health workers in that sector.

10.2.4 Identify key issues related to the health workforce and the private sector

This section presents examples of potential key issues and challenges of interest when analysing the private portion of the health labour market, and makes suggestions on how to approach them.

Private education

In relation to the expansion of private education, the analysis needs to measure the phenomenon, to characterize the institutions involved, and to assess the quality of their programmes, their alignment with national health policies, and their contribution to meeting the needs of the population. It is important to collect information on the number and evolution of admissions and graduates and on the characteristics of schools, including programmes, infrastructure, equipment, clinical training settings, profile of educators and trainers (full time or part time, education level), admission procedures, and fees charged. The analysis should assess the extent to which the institutions are regulated, how and by whom they are regulated, and whether they are socially accountable.

In countries where there are institutions training health workers for export, and in those with training programmes designed for foreign students, the analysis should assess the impact on the national education pipeline.

Service delivery

Issues relating to service delivery include how the private and the public sector compete for the recruitment of health workers, and whether this has an impact on the implementation of national health policies and the pursuit of objectives such as the SDGs and universal health coverage. Useful information includes data on the share of the total workforce in the private sector, on its composition (profile of workers, skills mix), on its distribution by type of service and by geographical zone, and on working conditions, such as type of contract, remuneration



and benefits. This information, when compared with data for the public health labour market, will assist an understanding of recruitment and retention problems that the public sector may encounter. In countries that offer “medical tourism” services (whether by private providers or in sections of public facilities dedicated to this activity), the analysis needs to appraise its impact on the equity of access to health workers by the national population. **Box 10.1** offers a discussion of human resources for health equity.

Box 10.1 What is human resources for health equity?

Human resources for health equity is a critical determinant of equity of access to health services, and embraces a number of complementary elements.

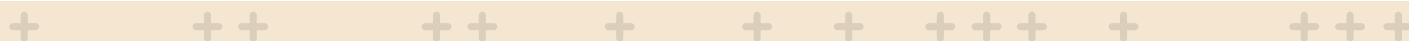
First, there is human resources for health equity when all members of a population have the same access to health workers according to need, irrespective of capacity to pay and without any form of discrimination (for example by social status, ethnic origin, religion or sexual orientation). There is also equity when access to health workers is modulated as a function of the importance or urgency of the need or the gravity of the health problem. These two dimensions correspond to the notions of horizontal and vertical equity in the language of economics.

Then there is equity in quality, when health workers provide the same quality of service to all users for the same type of need.

There are many obstacles to achieving human resources for health equity, including the following.

- The stock of health workers may be insufficient to respond to all needs.
- The skills mix may be unbalanced, for example when there is a lack of prioritization of primary care and a proportion of the population does not have access to a general (medical or nursing) practitioner.
- The geographical deployment of the health workforce may be unbalanced, such that people living in certain areas have less access than those in other areas.
- The profile of some available health workers may not be acceptable to users, as is the case when gynaecologists or obstetricians in a country are men, but the cultural norm is that women should not be seen by a doctor who is a man.
- Health workers may not have access to the same resources (equipment, medicines, knowledge) and therefore are not able to deliver the same quality of services in all instances.
- Some health workers may behave in a way that limits equitable access (for example, by asking for under-the-table payments or by giving preference to their private patients in the case of dual practice).

In conclusion, policies to improve human resources for health or health workforce equity need to focus on eliminating, or at least mitigating, the negative effects of these obstacles.



Dual practice and implications

There is the specific issue of the impact of dual practice, which takes different forms (Box 10.2). In many countries, a significant number of health professionals, in particular doctors, work in both the public and private sectors. Dual practice provides a supplementary source of income to increase salaries that are considered inadequate. Authorizing dual practice of public sector workers is often used as a strategy for recruitment and retention. For instance, in Malaysia, the Full Paying Patient scheme allows public doctors to practise privately at designated private wards in some public hospitals. Specialists have recently been allowed one day per week to work or teach in the private sector (10). Countries as diverse as France, Morocco, the United Kingdom and Viet Nam (11) authorize some form of dual practice. In others, it is prohibited, but still exists informally. There is evidence suggesting that, authorized or not, it can have negative implications for the equity, efficiency and quality of health care provision (12), for example due to lower productivity, frequent absenteeism or tardiness, and diversion of patients (as when physicians encourage patients to consult them privately). The analysis of dual practice is very challenging due to the lack of data and information, particularly where it is informal. For example, in Sri Lanka, it is estimated that up to 60% of government doctors and 90% of specialists among them engage in dual practice (13).

Box 10.2 Dual practice

There are several forms or modalities of dual practice, referring to health workers, mostly physicians, combining work in the public and private sectors:

- **outside:** work in separate public and private facilities;
- **beside:** work in a private ward or clinic physically associated with a public facility but run as a separate business;
- **within:** provide private services inside a public facility, outside public service operating hours or space;
- **integrated:** receiving additional fees for services offered alongside standard public ones, often informally, in exchange for a faster – or expected higher-quality – service.

Dual practice can be authorized or informal.

Source: McPake et al. (14).

Table 10.1 outlines regulatory responses to manage dual practice and includes a brief overview of the objectives and challenges of each approach.

Table 10.1 Policy options to manage dual practice

Dual practice policy	Country examples	Rationale	Challenges
Complete ban	China, Greece (1983–2002), Portugal (before 1993), some states in India, Saudi Arabia and Turkey (with the exception of university hospitals)	Avoids adverse effects of dual practice	<p>Difficult to enforce</p> <p>Increases in informal payments to health workers in public hospitals</p> <p>Losses of qualified/senior physicians to the private sector or to other countries</p> <p>Extra cost to monitor activities</p> <p>Increases waiting times for treatment</p>
Licensure restrictions	Kenya, some states in India, Indonesia, Zambia, Zimbabwe		<p>Difficult to monitor</p> <p>Violation of policy</p>
Restrictions on physicians' earnings	France, United Kingdom	Reduces profit maximization intention of physicians	<p>Only practical in countries with efficient systems to monitor private sector activity</p> <p>Physicians might quit public practice if private sector revenue is very high</p>
Exclusive contracts and perks in public sector	Italy, Portugal, Spain, Thailand, some Indian states	Discourages physicians from private practice	Only works when dual practice is for financial purpose and if the increase compensates for revenue loss from non-practice in private sector
Increased public sector salaries	Studies in Bangladesh and Norway		<p>Governments in low-income countries cannot offer wages that compensate for loss of private sector earnings</p> <p>Offering such contracts only to physicians creates resentment across other health workers</p>
Private practice allowed in public hospitals	Austria, France, Germany, Ireland	Efficient regulation and monitoring of private health provision	Appropriate policies must exist to avoid misuse of public resources and determine the types of private practice interventions to be allowed
	Experimented in Ethiopia, Portugal, Spain	Synergies between public and private sector	Conflict of interest for physicians is a possibility
	Bahrain, Ghana, Nepal	<p>Adds revenue to the public sector</p> <p>Prevents physician losses to private sector</p>	The difference in price and possibly treatment options in the same hospital can be seen as discriminatory
Limitations on types of services offered in private sector	Canada	Discourages people from using the private sector for services available in public hospitals	Only works in countries with universal health coverage and efficient financial monitoring systems
Self-regulation	United Kingdom	Ensures high quality of care and discourages negative effects of dual practice	Does not work in low-income countries with low salaries, low morale, weak or absent monitoring systems, and less empowered professional bodies and civil society

Source: Adapted from Alaref et al. [15].

Regulation mechanisms

The overarching issue is the existence and effectiveness of regulation mechanisms of the various dimensions of the private sector. The HLMA should explore the following:

Who are the regulators?

- Government (ministries of health, education, finance, a dedicated public agency); a national or international accreditation body; a professional regulatory body; or a mix of regulators.

What is regulated?

- Employment: for example, type of contract, dual practice, remuneration.
- Profession: regulatory functions often include establishment of professional codes of conduct, identification of scopes of practice or schemes of service, systems of licensure, maintenance of registers of those fit to practise, and systems to ensure continuing professional development and appropriate disciplinary measures in cases of misconduct. Health professional regulatory processes have also been used to give effect to broader policies related to equitable distribution, international cooperation, dual practice and compulsory service programmes.
- Education standards, quality of education programmes, organizations (such as private educational institutions), clinical training setting, and private outpatient and inpatient organizations.

What are the mechanisms of regulation?

- Licensing, registration, certification of individuals, accreditation of educational institutions and programmes and provider organizations, quality assurance and surveillance by professional bodies or by a government agency.

What potential differences exist between the theoretical regulation system and capacity to implement the regulation?

- It is essential that the HLMA considers not only whether regulation systems are present, but also whether the design of the rules and regulations serves the interest of human resources for health equity; considers the institutional and governance systems in which they reside; takes account of the operational processes that are meant to give effect to the rules and regulations; and assesses the human and financial capacity required to give effect to efficient, just and dynamic regulatory systems, an issue that was highlighted as a fundamental concern at the 2019 Global Symposium on Health Workforce Accreditation and Regulation, December 2019, Istanbul, Turkey.



10.3 Gathering information and data on the private sector

Typically, health labour market analysts will have to deal with a lack of easily accessible information and data, particularly where levels of informal employment are high. Different approaches are available to address this challenge, each with its strengths and weaknesses, and its specific time and cost constraints.

10.3.1 Conducting a health workforce census

This approach allows for timely and wide-reaching insight into the supply of health workers. When there is no regular collection of data on the private health sector, it may be the best approach to gain the required insight into this part of the health labour market. Since informal health workers will not be captured in many traditional monitoring and data collection efforts, a census may be the best means to understand the size and scope of informality in the health labour market. However, census data collection requires significant financial and human resources. In addition, it is generally done as a one-time activity, therefore not lending itself to longitudinal data collection and analysis. **Box 10.3** provides an example of how an HLMA can compensate for the lack of reliable data on the private health workforce.

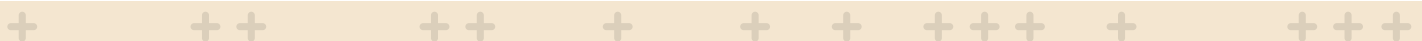
Box 10.3 Census of the health workforce in support of an HLMA: the experience of Bangladesh

The information in this box will help respond to the following questions:

- When is primary data collection necessary?
- Census or nationally representative sample: which to choose?
- How can self-reported occupations be standardized and validated?

The Government of Bangladesh collects reliable public sector health workforce data on a regular basis. Yet, there are no regularly collected data on the private health workforce. It is postulated that the private sector is large and growing and encompasses the majority of health workers in the country [16]. Therefore, knowledge of the entire health labour market in Bangladesh is incomplete, causing a blind spot in the formulation of evidence-informed national-level health workforce policy and planning. As a result of lack of data from the private sector, a reliable estimate of the total density of all health workers in Bangladesh was missing. In addition, the number of different occupations coexisting in the sector was unclear, and it was not possible to gain a clear understanding of the relative role of the public and private sectors in health care delivery.

The Ministry of Health and Family Welfare and WHO commissioned a study to map *all* active health care providers (qualified, semi-qualified and unqualified, including allopathic, traditional and alternative care practitioners, covering the public, private and informal care sectors). It was decided that the best way to fill this data gap was to conduct a census-style survey. Since data on public sector workers were readily available, the detailed survey focused on the private and informal providers to avoid duplicative data collection (and to save time and money). For public sector health workers, the Ministry of Health and Family Welfare data on age, sex and occupation were used. Those engaged in dual practice were interviewed to gain information on their private sector roles.



A technical support group supervised the data collection. The group included representation from the Ministry of Health and Family Welfare, the Directorate General of Health Services, the Directorate General of Family Planning, the Directorate General of Nursing and Midwifery, the Directorate General of Drug Administration, the Centre for Medical Education, the Bangladesh Bureau of Statistics and WHO. As a full census-style survey would be time consuming and costly, the technical support group agreed on a methodology to survey a nationally representative sample. The approach used the integrated multipurpose sample design of the Bangladesh Bureau of Statistics. A total of 133 primary sampling units were defined and selected by the Bangladesh Bureau of Statistics; 56% were rural, reflecting the rural–urban balance in the country. For each primary sampling unit, the analysis ascertained the total number of private sector (for-profit and not-for-profit) and informal providers and public sector providers, and documented the basic parameters.

A series of consultations with the technical support group, the Bangladesh Bureau of Statistics, WHO, and the Joint Secretary, Human Resources Branch, Ministry of Health and Family Welfare, helped develop a semi-structured questionnaire, translated into Bengali and transferred into the Open Data Kit platform. There was a pre-test of the tool, leading to several modifications. Trained enumerators did another round of field-testing of the tool. Personal digital assistants (mobile or tab) and the Open Data Kit platform served to administer the questionnaire, using the Open Data Kit platform KoBoCollect assistant, a secure and user-friendly software that has worldwide recognition. Data analysts developed an XLS form and set it up in tablet computers; trained the data collectors on personal digital assistant usage for data collection; supervised data collection on tablet devices; sent collected data to the server; and screened and managed the online data.

Field data identified more than 75 categories of service providers. For ease of analysis and harmonization of the findings with international standards, technical support group members reclassified the occupations into sub-major groups, minor groups and occupations as per the International Standard Classification of Occupations (ISCO). The technical support group also classified unrecognized health workers in categories cross-checked with information on training from the data collection to create a category of untrained and unrecognized health workers. This was important, as 39% of workers surveyed fell into this category, a majority of whom had no formal training. Of the recognized health workers, 71% worked in the private sector. This showed that data on the public sector alone cover less than one third of the labour market of recognized health workers and one sixth of the entire health labour market. The census-style survey provided insights into the size and scope of the entire health labour market and its high level of informality. The survey was key to ensuring reliable evidence to inform policy-making.

10.3.2 Labour force surveys

National labour force surveys are the main source of labour market indicators. Labour force surveys can be useful to gain a broad overview of the health workforce in the country when administrative records are not available. To that end, the labour force survey's section on job characteristics can be very useful, since it reports (a) current employment, including multiple job holding; (b) basic status in employment for the main job, such as employed or self-employed; (c) occupation; (d) sector of work (private or public); (e) full-time or part-time employment; and (f) working conditions. It may also be useful to assess the importance of dual practice at the national level (Box 10.4).



Box 10.4 Using a labour force survey to assess dual practice

Key questions that the survey can ask:

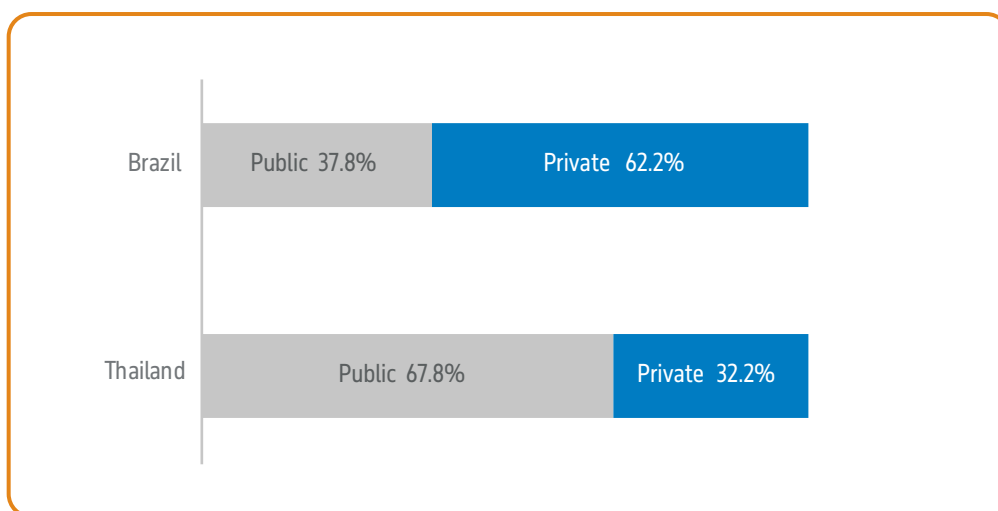
- Do workers have multiple jobs?
- Do they dedicate all their time to their primary occupation?
- What is the gender distribution of health workers?
- Are there differences in working conditions in the health sector, differentiated by public and private employment?

Depending on the sample, a labour force survey can enable the relevant authorities to:

- estimate the percentage of health workers in relation to total employment, and the percentage of health workers in the public and private sectors;
- assess numbers of workers holding multiple jobs (private and public sector);
- estimate the percentage of workers working part time in their primary job and declaring a secondary job;
- study differences in working conditions between the private and public sectors;
- estimate average wages in each sector.

As an example, **Figure 10.2** compares the percentage of health workers in the private and public sectors in Brazil (2017) and Thailand (2016). The two countries present two completely opposite situations: in Brazil 62.2% of health workers had their primary job in the private sector while in Thailand only 32.2% declared that their primary job was in the private sector. While these percentages provide an initial overview of the distribution of the health workforce in the public and private sectors, they also pose further questions: Does this distribution between the private and public sectors vary by occupation? Do workers dedicate all their time to their primary occupation?

Figure 10.2 Share of human resources for health working in the public and private sectors: Brazil and Thailand



Source: Human resources for health country profiles based on WHO labour force survey analysis: Thailand 2016, Brazil 2017.



In addition, labour force surveys capture information by occupation. For example, information reported in the Brazil labour force survey (2017) indicated that 53% of physicians, 46% of nursing and midwifery personnel, 75% of dentists, 77% of pharmacists and 2% of community health workers were employed in the private sector.

Some labour force surveys capture the essential characteristics of a second job. This enables more detailed analysis of those holding multiple jobs, those reporting having a job in the public sector, and those working part time. Key guiding questions are: Do workers have multiple jobs? Do they dedicate all their time to their primary occupation? This analysis could be done by first combining the information on primary employment, occupation and percentage of time allocated to work (full time or part time). For instance, in Brazil, 67% of health workers reported working full-time; this percentage varied by occupation, with 42% of physicians and 34% of nurses and midwives working full-time. This suggests that 33% of health workers declared their primary job as part-time work. Combining the response of health workers declaring part-time work as their primary employment with their response on their secondary employment – if they have one – can provide a rough estimate, to be interpreted with caution, of the importance of dual practice, as the secondary part-time job could be a job in the private health sector or vice versa.

What is the gender distribution of health workers? Are there differences in working conditions in the health sector between public and private employers? Labour force surveys report information on working conditions and individual characteristics – such as sex – of the health workforce in the private and public sectors. For example, data from the labour force survey in Brazil show that 56% of women working in the health sector were employed in the private sector compared to 52% of men.

Moreover, data on earnings are essential to understand employment levels in labour markets, since differences in wages between the private and public sectors influence workers' decisions on where to work and on the share of time dedicated to each sector. Even though information on wages from labour force surveys is not accurate and most of the time is underestimated, it represents a proxy to study the differences in income between the private and public sectors.

Finally, it is important to understand the limitations of using a labour force survey to assess the extent of dual practice in the country. Mainly, the labour force survey is limited by the size of the sample of the survey and its geographical coverage. Very few surveys have a sample large enough to make these estimates. For instance, if the survey covers only urban areas, then the statistics would not be representative of the country as a whole. In addition, it is more feasible to have an estimate for dual practice of health workers as a whole than to have an estimate for each health occupation. Furthermore, workers might not report a secondary



activity in countries where working for both the private and the public health sectors is not allowed or if they are practising without paying taxes.

10.3.3 Other approaches

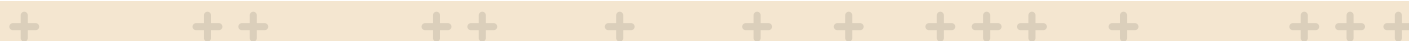
When financial and human resources are limited, the timeline is tight, and there are no available surveys or registers with information on the health workforce in the private sector, a combination of different methods is an option:

- Carry out interviews with key informants to elicit some information on and insights into the size and scope of the private health labour market.
- Use proxies to measure the importance of the health workforce in the private sector:
 - One such proxy is the ratio of out-of-pocket to total health expenditure, the assumption being that countries with higher out-of-pocket expenditure would also have a higher share of their health workforce in the private sector. This is a very crude method and results should be considered with caution, as significant out-of-pocket components might be related to other expenditures such as drugs and other health-related consumables.
 - Another proxy is the difference between the total number of registered health professionals and the total number employed in the public sector. Here also, one should be cautious in interpreting the results, as some registries are not live registries and include people who have retired or left the country.

In spite of their weaknesses, these approaches can help to get a better sense of the importance of the health workforce in the private sector, and also highlight the necessity of collecting information and data in a systematic manner.

10.4 Conclusion

The main message of this module is that to be useful an HLMA must cover the whole health workforce. The analysis of the supply of and demand for health workers in the public sector is usually easier to conduct, as more information is available. The private sector is often poorly documented for a number of reasons, including weak regulation and the resistance of private providers to divulge information. Analysts need to rise to the challenge of characterizing this component of the health labour market in spite of the difficulties. Universal health coverage can be achieved by mobilizing the public and the private components of the health labour market, as long as there are policies and interventions that ensure that the two meet the objectives of equity of access to health workers, and of quality of their education, training and practice.

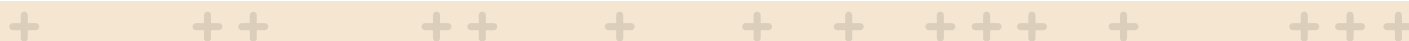


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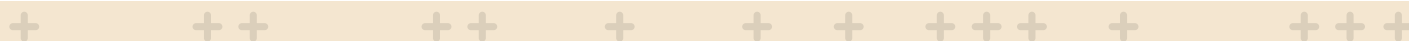


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+ Module 11

Health labour market mismatches

Summary

This module reviews different aspects of mismatches between supply and demand to better understand the complexities of labour market dynamics in the health sector.

There are three main different types of supply and demand mismatches:

- shortage or surplus of labour
- skills mismatch related to undereducation and overeducation
- labour discrimination or bias exercised by the employer.

The module is structured as follows.

- The first section introduces the importance of the interaction between the supply of and demand for health workers.
- The second section delves into key concepts and issues around demand and supply.
- The third section reviews the key steps to analyse demand and supply mismatches.

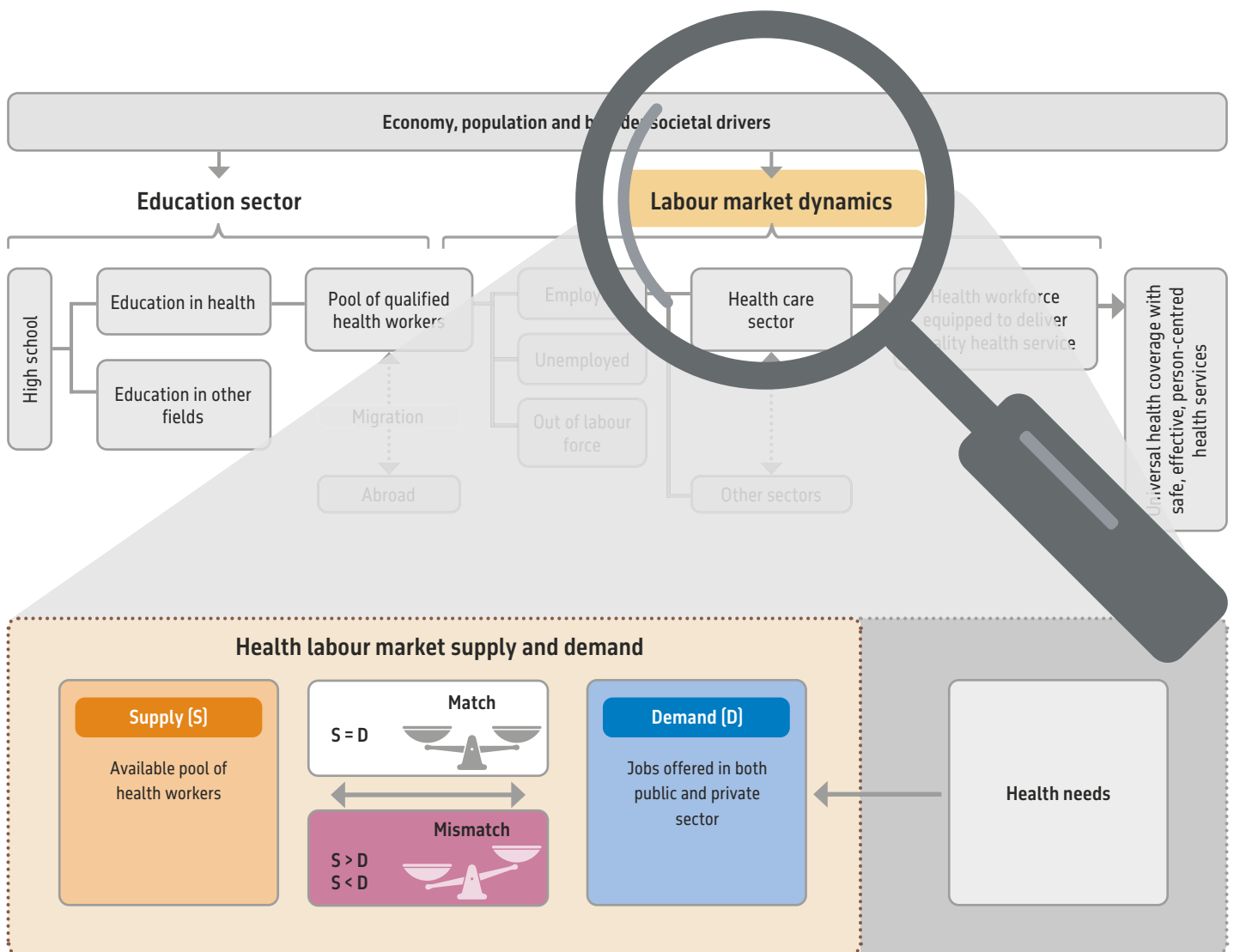
11.1 Introduction

Building on Module 7 on supply and Module 8 on demand, this module first discusses the main concepts to better understand the labour supply and demand mismatch issues, and presents key steps for analysing them.

Traditional approaches to developing human resource strategies in the health sector have mainly relied on supply-side planning, which estimates health workforce requirements and proposes scaling up (or down) education capacities to narrow the gap between the existing number of health workers and the number required. This focus on the production of health workers neglects other important aspects of labour market dynamics, such as changes in demand, employer relations with workers and professional unions, or job preferences of workers.

The interaction of the supply of and demand for health workers is at the core of health labour market outcomes. **Figure 11.1** presents a schematic representation of the interrelationships between labour supply and demand, the influence of the education sector on supply and the impact of health sector conditions on creating jobs in health care. The term “mismatch” is used to refer to the various forms of misalignment between labour supply (workers) and labour demand (jobs).

Figure 11.1 Analysis of the health labour market through demand and supply



11.2 Demand and supply mismatch: key concepts and issues

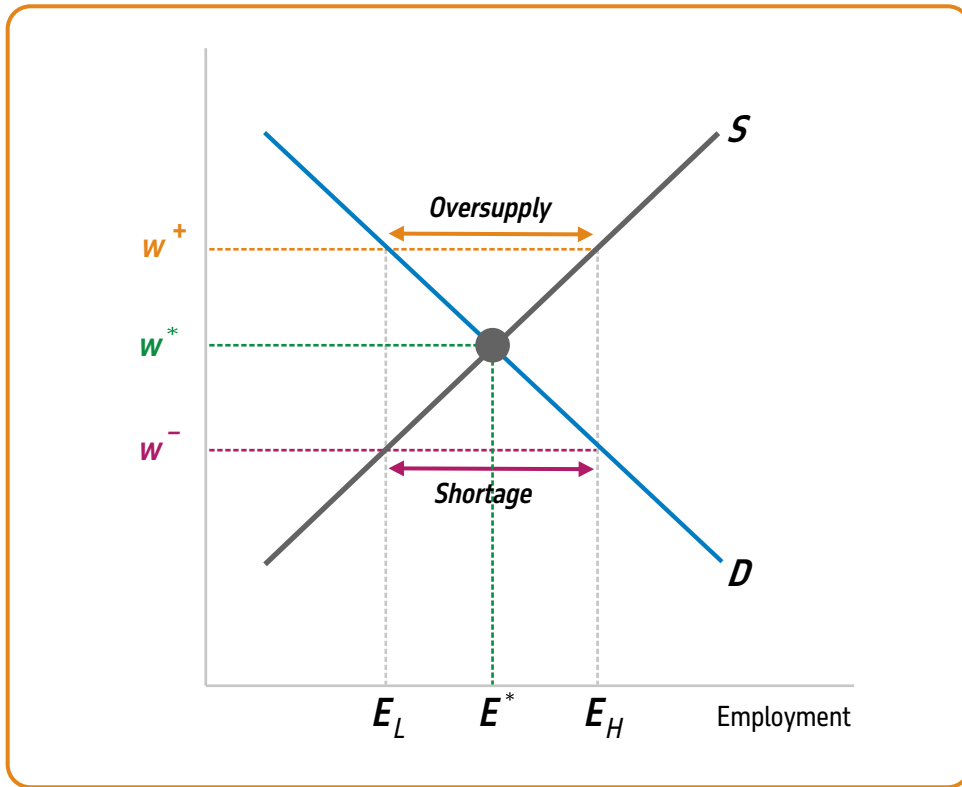
Labour markets are said to “clear” when the supply of labour matches demand. At “wage equilibrium”, the number of health workers willing to work will match the number of jobs offered, as described in **Box 11.1**.

A mismatch between demand and supply occurs when the number of health workers willing to work does not match the number of jobs offered. Key questions are: How long does the mismatch last? Is the mismatch temporary or permanent? In a competitive labour market, it is expected that most mismatches resolve over time. However, the notion of equilibrium in a perfectly competitive market is rather theoretical and is rarely observed in reality, though it provides a useful analytical framework.

Box 11.1 Equilibrium in a competitive labour market

From a labour economics perspective, the labour market is in equilibrium when supply equals demand and E^* workers are employed at a market-clearing wage of w^* . In equilibrium, all persons who are looking for work at the going wage can find a job and there are no unfilled posts. **Figure 11.2** shows the intersection of labour supply (S) and labour demand (D) curves in a competitive market. The supply curve gives the total number of workers willing to enter the market at a given wage level while the demand curve gives the total number of workers that employers will hire at that wage. Equilibrium occurs when supply equals demand, generating the competitive wage w^* and employment E^* . The wage w^* is the market-clearing wage. At wage level w^+ , too many health workers will compete for the few available jobs; consequently, there will be an oversupply of health workers. In contrast, at wage w^- , the number of jobs available for health workers is greater than the number of health workers willing to work at that wage level, resulting in a shortage of health workers.

Figure 11.2 Supply and demand curves in a health labour market



Markets, especially in health, rarely clear; they show inefficiencies and dysfunctions that can be temporary or the result of mid- or long-term structural market failures. There is a role for government intervention to mitigate market failures and minimize the gap between the demand for and supply of health workers.

There is no single homogeneous health labour market. Some labour markets are more akin to a monopsony (with only one buyer, for instance the ministry of health) or an oligopsony (with a limited number of buyers). On the other hand, highly unionized occupations can create a monopoly in the local market (one seller) (see [Appendix 11.1](#)).

Health labour market mismatches have undesirable effects on the performance of health systems and consequently on patients, workers and employers. There are three broad categories of such effects: (a) access to care; (b) health care performance (productivity and quality); and (c) health worker well-being.

Access to care

One of the most obvious negative impacts of supply and demand mismatches is the shortage of qualified health workers in areas of need. The imbalance can occur not only in terms of the number of workers in position, also but in terms of skills mismatches, which can result in some services not being available.

Another effect is the difficulty in recruiting and retaining qualified workers in rural and remote regions. This problem affects nearly all countries and is especially acute in low- and middle-income countries. At the core of this problem is the mismatch of expectations of employers and workers.

Impact on productivity and quality

Underskilled health workers contribute to lower productivity and quality, as they require help from other workers or perform below standard. For overskilled workers, it is demotivating to work below their capacity; they may eventually become de-skilled or leave the local job market to seek better opportunities elsewhere.

Using cross-country industry data and a survey of adult skills for 19 high-income countries, an OECD study found that a higher level of skills and qualification mismatch is associated with lower productivity, with overskilling and underqualification accounting for most of these impacts [1]. Although the study was not specific to the health sector, these findings, combined with the findings of significant skills mismatches in the health sector, should be a cause for concern for health policy-makers and would merit further research.

Impact on health workers' well-being

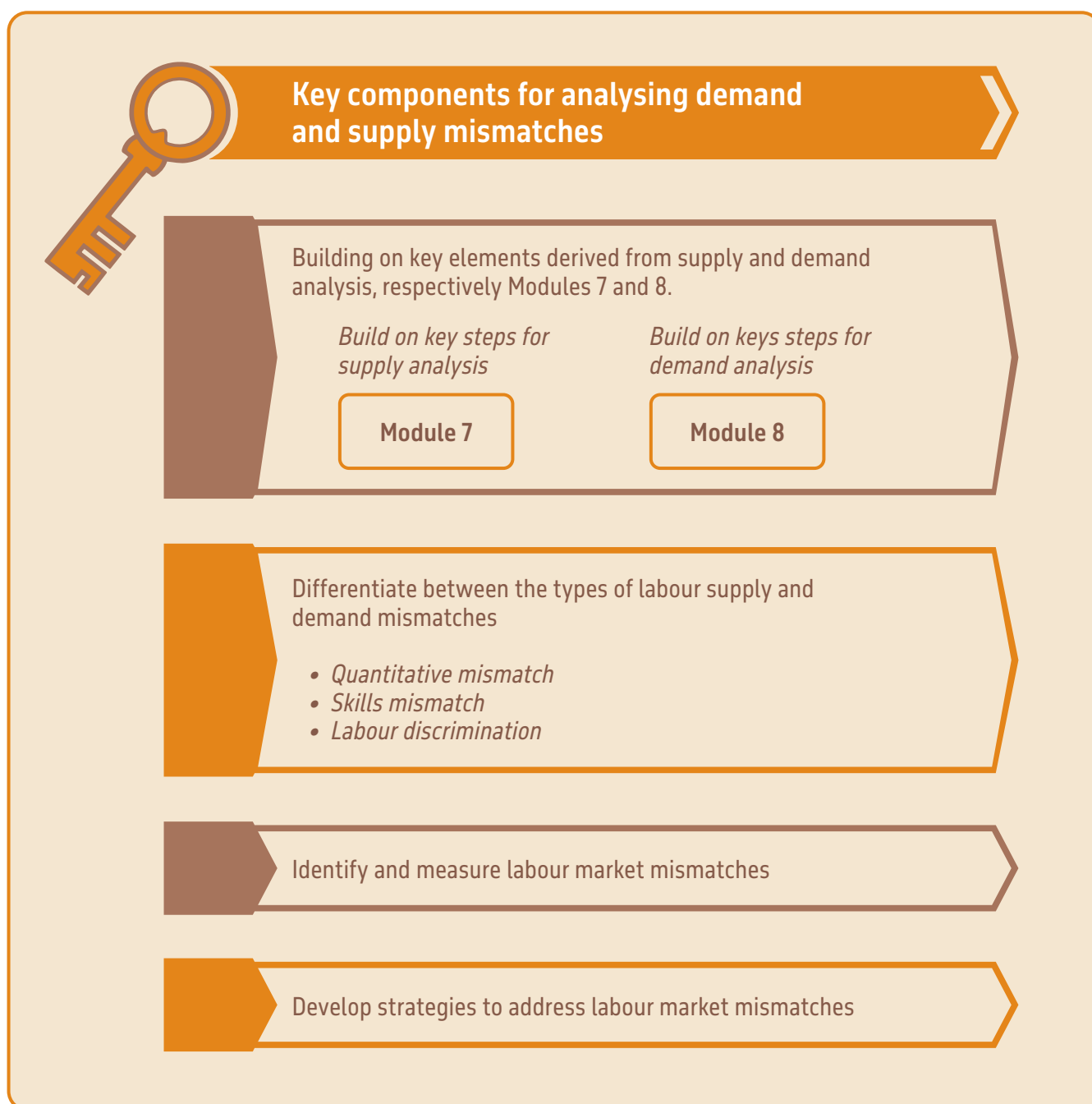
An often overlooked aspect of labour market mismatches is their impact on health workers themselves. The burden of covering for staff shortages and skills mismatches falls on existing workers, who must work longer hours or take on additional functions. Demotivation and burnout have become a widespread phenomenon closely correlated with a chronic imbalance between high job demands and inadequate resources [2].

11.3 Key steps to analyse demand and supply mismatches

Key steps to analyse demand and supply mismatches are complementary to those presented in Module 7 on supply of health workers, and Module 8 on the demand for health workers [Figure 11.3].



Figure 11.3 Key steps to analyse demand and supply mismatches



11.3.1 Building on key elements of demand and supply analysis

An analysis of supply–demand mismatches helps to gain a better understanding of factors leading to possible mismatches. On this basis, it is necessary in the analysis to differentiate between the various types of health labour market mismatches.

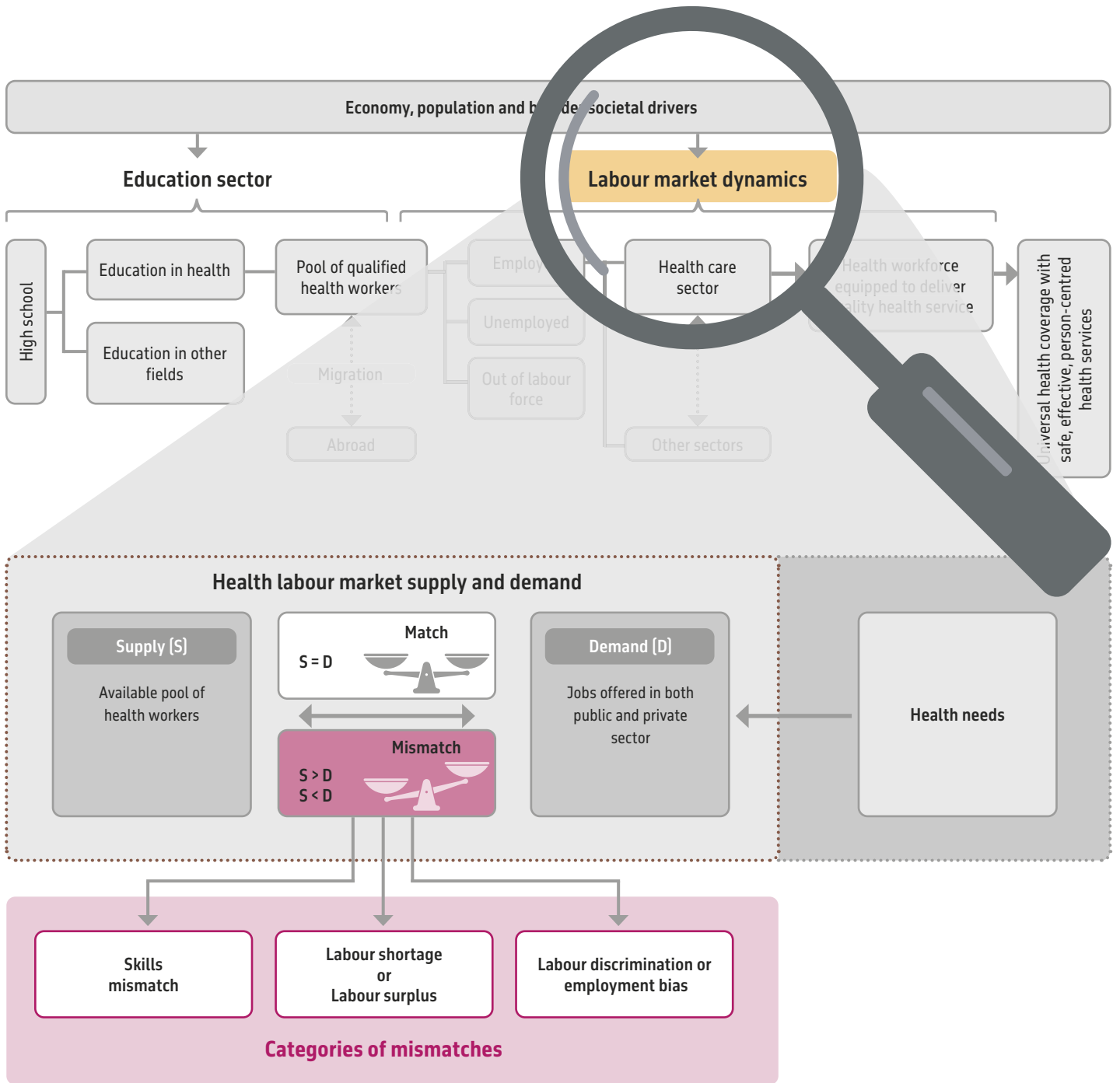


11.3.2 Differentiate between various types of health labour market mismatches

A mismatch between demand and supply is an outcome of many complex interactions between employers and workers, influenced in turn by the characteristics of the labour market structure. In an HLMA it is important to identify signs indicating a mismatch while differentiating between the various types of mismatches, enabling the development of more relevant policy responses [Figure 11.4].

- **Quantitative mismatches** occur when the number of health workers entering the labour market or the number of health workers willing to work does not match the number of health sector jobs.
- **Skills mismatches** reflect a misalignment between workers' skills and job requirements. This might be due to undereducation, overeducation, obsolescence of skills, or other factors.
- Mismatches may also be a consequence of **labour discrimination**, for example by gender or race, or other forms of employment bias.

Figure 11.4 Different types of health labour market mismatches



Labour shortage and labour surplus

Supply shortage or supply surplus can occur when not enough or too many health workers are produced to fill available positions.

Addressing a shortage is not a simple matter of raising the production of workers. It involves managing complex relationships within the education system and professional regulatory system. For qualified health occupations, there is a long lag time between an increase in demand for workers and a consequent increase in the number of new workers (supply), due to the extensive education and training period. This can lead to a “dynamic shortage”, as it takes a long time for the education system to respond to an increase in demand, and in the meantime the health sector will continue experiencing a supply shortage. On the other hand, there could be a “dynamic surplus”, which occurs when the education system is unable to respond quickly to a decrease in demand, for example, due to government budget cutbacks on health care subsidies, or when the economy is unable to absorb all available workers.

Box 11.2 provides an example of policy formulation to address health workforce shortage and absorption capacity in the context of Ghana.

Box 11.2 Health workforce supply and demand mismatches in Ghana: wage bill, production and recruitment

In the late 1990s and early 2000s, Ghana experienced severe shortage of health workers and emigration of health professionals, mainly nurses and doctors. Some of the reasons for the health workforce shortage were low rates of enrolment in health training institutions, low remuneration, lack of career development opportunities, and poor working conditions, leading to 62% of health workers at the time intending to migrate abroad [3].

In 2002, the Government of Ghana started a process to liberalize the training of health professionals, and in 2006 comprehensively reviewed the remuneration package for health workers. The review of health workers' remuneration pegged it somewhat higher than other civil servants at comparative levels of training. In 2010, a further harmonization of public sector wages saw an additional nominal improvement in the remuneration of health workers of two to three times their previous income. In addition, tax waivers were granted to health workers who imported vehicles for personal use, while the government also instituted a vehicle hire purchase scheme for health workers.

Intended and unintended consequences of the interventions in the health labour market

Following the improvement in remuneration of health workers, enrolments in health training institutions, notably in the nursing and medicine courses, increased significantly [4]. For nurses and midwives, major jumps in enrolment started from 2009 [Figure 11.5]. Retention also improved, notably through reduction of emigration [5].



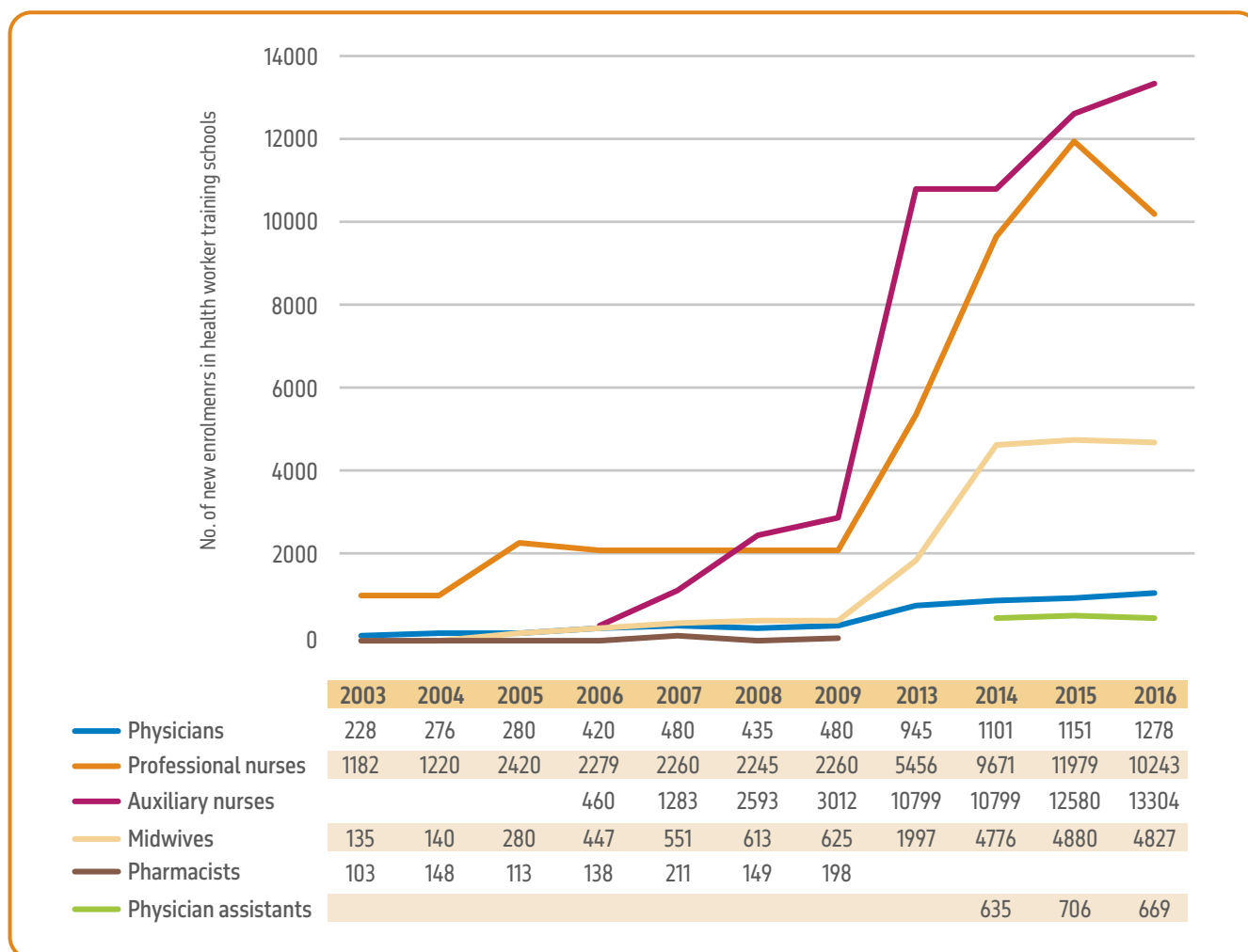
Concomitantly, health workforce density increased and the public health sector wage bill also ballooned. In 2011 and 2012, the wage bill consumed more than 70% of the entire health budget of the government, which was attributed to the knock-on effects of the 2010 salary enhancements [Figure 11.6].

As a consequence, starting from 2014, wage-related cost containment measures were put in place, by which there was a net freeze in employment from 2015 to 2017, resulting in large numbers of trained health workers remaining unemployed for two to four years [4]. In 2018, an evidence-based health workforce gap analysis was used to justify additional recruitments, which led to an increase in budgetary allocations, culminating in the employment of thousands of unemployed health workers [6, 7].

Nonetheless, as the country continues to produce more than 25 000 health workers annually (from both the public and private sectors), the rate of production is outpacing the rate of increase in the compensatory budget allocation to the Ministry of Health. Ghana's case exemplifies how improvements in remuneration and liberalizing training, coupled with other interventions, can address labour shortages in the long term, but if there is no commensurate expansion of fiscal space, a potential labour surplus can ensue and present itself as a social crisis with dire consequences.

Source: Asamani et al. [4].

Figure 11.5 Enrolments into selected health training programmes, Ghana, 2003–2016



Source: Data triangulated from various sources.

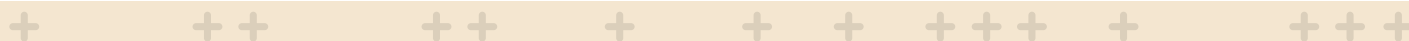
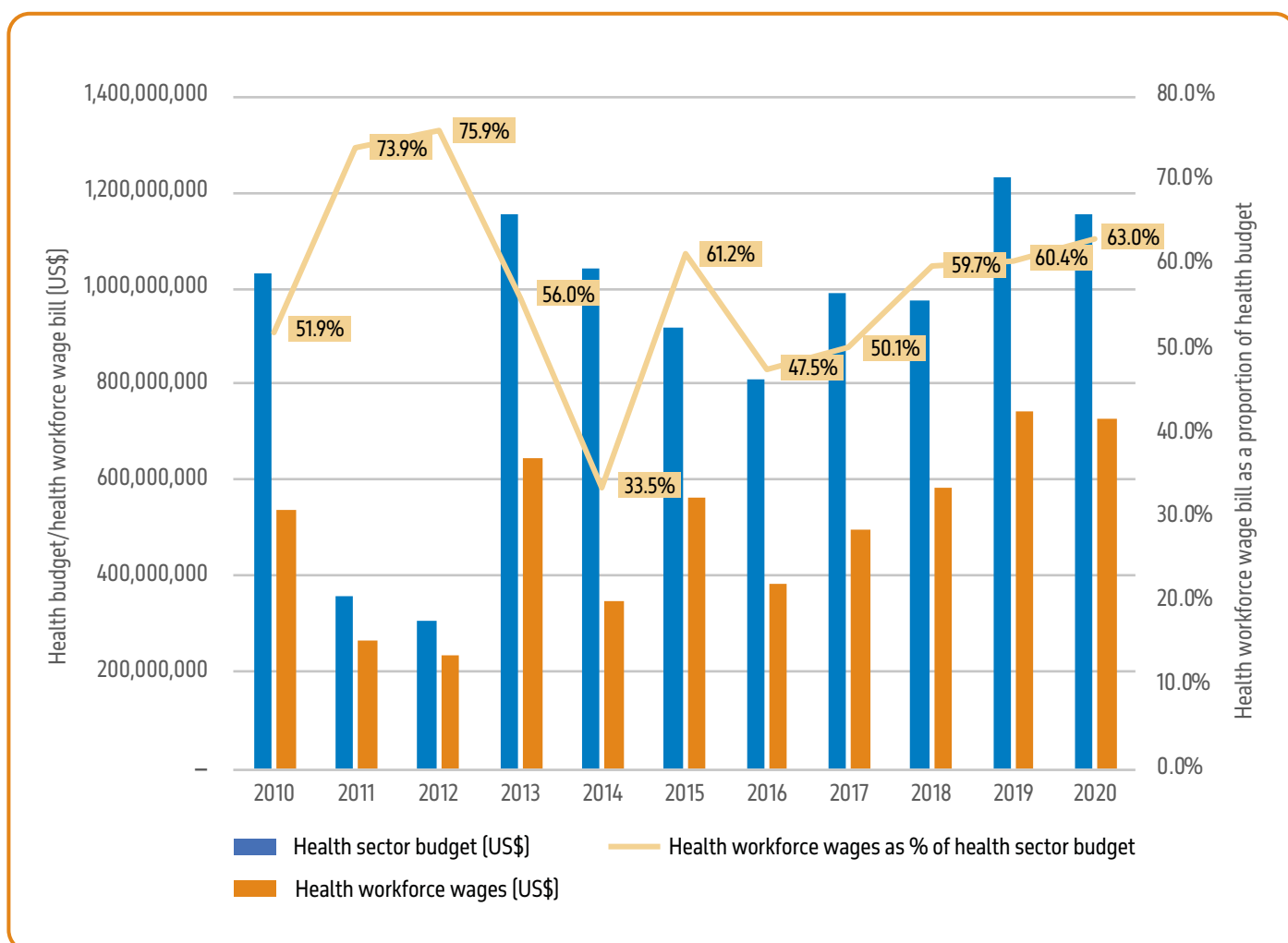


Figure 11.6 Trends in public health sector budget allocation versus wage bill, Ghana, 2010–2020



Source: Data triangulated from various sources.

Governments and professional regulatory bodies play a significant role in determining the number of graduates entering the workforce. Most OECD countries exercise tight control over the production of health professionals through a quota system (*numerus clausus*). For some 30 years, the quota system has enabled governments to plan for medium- and long-term workforce requirements and avoid the occurrence of dynamic shortages or surpluses [8]. While the quota policies began initially for medical education, several countries have extended their use to other professions, including dentistry, pharmacy, midwifery and nursing [8]. Justifications for imposing a *numerus clausus* system include (a) to preserve the quality of education by maintaining acceptable tutor–student ratios; (b) to select only the best students deemed the most capable of pursuing and successfully completing studies; (c) to control the number of individuals entering the profession to avoid supply-induced demand and escalation of health care costs; and (d) to limit the amount of public subsidies for health education.



Although the *numerus clausus* has been introduced to avoid unexpected shortage or surplus of professional health workers, governments and regulators can often miss their mark on projections. Increasingly, it has become difficult to make reliable projections due to technological innovations and changing job preferences of health workers ([Appendix 11.2](#) presents different strategies to project and plan for future health workforce requirements). Quotas can also end up being used to serve the interests of one stakeholder group over another, which can result in other forms of labour mismatch.

Many countries are experiencing a rapid expansion of private educational institutions that are producing medical and other health workers outside the government planning framework or professional regulatory system. Coordinating the production of new graduates from the private sector and integrating them into residency and clinical programmes with appropriate faculty and training facilities are major challenges for many low- and middle-income countries.

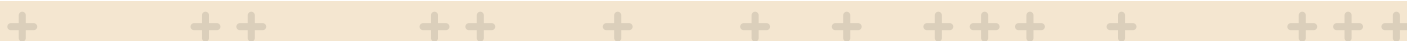
Another type of labour mismatch is a situation where job vacancies persist even while an adequate number of qualified health workers are produced ([Box 11.3](#)). This can occur when there is a significant mismatch of expectations between the worker (supply side) and the job offered (demand side). This reflects the fact that conditions of employment, such as working conditions, career opportunities, and access to technology, all play as important a role as wages (prices) in determining labour market outcomes. Misalignment of any of these parameters can lead to a labour mismatch.

Box 11.3 High vacancy rates in spite of rising production of health workers in Chhattisgarh, India

With the aim of accelerating attainment of universal health coverage in Chhattisgarh, an HLMA, conducted by WHO jointly with the State Health Resource Centre, synthesized evidence on health workforce bottlenecks and the key health workforce elements to consider for a successful roll-out of health and wellness centres in Chhattisgarh. The analysis revealed the high vacancy rates of medical officers, specialists and nurses, which are increasing over time and are especially acute in the more rural, remote and tribal areas of the state. Paradoxically, the increase in vacancy rates has occurred against a backdrop of rising numbers of trained qualified health workers.

Source: WHO and State Health Resource Centre [9].

The reasons behind an expectation mismatch are diverse and require a better understanding of the quality of jobs offered and of workers' job preferences. The dimensions of job quality can be classified as wages, working conditions and career opportunities. If the quality of jobs does not match the expectations or preferences of a worker, then the worker is more likely to seek a job elsewhere (for example, another location within the country or overseas, or in another sector) or remain unemployed while waiting for better job opportunities. For example, despite



chronic shortages of health workers and a large number of unfilled posts, Kenya had a pool of unemployed health professionals because of inadequate employment opportunities with acceptable working conditions [10]. A particularly problematic manifestation of the expectation mismatch is the difficulty in recruiting and retaining health workers in rural and remote regions. Regional disparities in health worker distribution are significant and widespread in most countries at all levels of income, but are especially acute in low- and middle-income countries [11].

Skills mismatches

Skills mismatches occur when the worker's skills profile and qualifications do not match the skills profile required by the employer. Survey results from OECD countries showed high rates of skills mismatches reported by doctors and nurses [12]. Around 75% of doctors and 80% of nurses reported overskilling in their current job, while 51% of doctors and 46% of nurses reported underskilling.

There is increasing technological unemployment due to rapidly evolving technology and the inability of the existing workforce to keep up with these changes. The phenomenon, described as "obsolescence" of skills, is now regularly measured by some international agencies such as the European Centre for the Development of Vocational Training [13].

Discrimination in employment

A third, emerging, category is the role that discrimination plays in labour market mismatches. Sources of discrimination may include gender, race, age, religion, disability, or other form of bias. Discriminatory practices can take place at various levels of the health system and can occur intentionally or unintentionally.

Discrimination can manifest itself in various ways, such as through wage differentials (for example, minorities or women receiving lower wages for similar tasks) or in lower employment rates among discriminated workers. Gender biases, discrimination and inequities remain systemic across the globe, and WHO reports that the gap may be widening rather than narrowing [14]. Module 9, on gendered dimensions of the labour market, contains more information on how better to address the issue of gender in an HLMA.

A recent survey in Ireland, for example, found that significantly more female doctors indicated a preference to work part time [15]. In recognition of these gender challenges, Ireland's Medical Council proposes policy reforms to create a workplace that is more welcoming to and supportive of female doctors. Oman also recognizes the feminization of the medical workforce and the criticality of understanding the differences in how they participate in the workforce and their work preferences [16].



A major case of gender bias in the health workforce was reported in 2018 in Japan, where a number of leading medical universities were found to have deliberately kept down the admission rate of female students.

These examples point to the importance of examining the cultural and social context of the labour market and developing feasible options for better workforce planning.

11.3.3 Identify and measure labour market mismatches

This section reviews the sources of data and analytical methods useful in identifying and measuring the different categories of labour mismatches. The WHO Global Strategy on Human Resources for Health: Workforce 2030 (17) identified the acute shortage of qualified health workers as a major obstacle to the achievement of universal health coverage by 2030, an “acute shortage” that goes beyond a simple supply shortage and covers a complex set of labour market mismatches.

Standard measures of labour supply and demand for workers include (a) data on employment rate, which provide information on demand that is already met; (b) data on unemployment rate, which provide information on the supply of persons looking for work but not currently employed; and (c) data on job vacancies, which show unmet labour demand. Access to data on all three dimensions of employment makes it possible to capture an accurate snapshot of the labour market at a given time.

Table 11.1 presents a hypothetical case of labour mismatches in which both unemployment and job vacancies occur simultaneously. In this example, there are 100 jobs available: there are 130 workers, of whom 110 are qualified for the job, but only 70 are employed; 40 qualified workers remain unemployed; and an additional 20 underqualified workers are also unemployed. The qualification dimension has been added to illustrate a situation where the labour market has a surplus of qualified workers and yet the employers face a shortage of this type of worker. This is not an uncommon occurrence in the health sector: the unemployed qualified workers may not be satisfied with the wages or working conditions and could be looking for other opportunities, or may be unemployed due to employer discrimination against certain groups (such as female doctors) and reluctance to hire workers from that group. The example highlights the importance of delving more deeply into the sources of mismatches, beyond the employment numbers.



Table 11.1 Hypothetical case of a labour mismatch with both unemployment (labour surplus) and job vacancies (labour shortage)

Category of workers	Number of workers	Number of jobs	Jobs
Employed	70	70	Filled
Unemployed, with qualification	40	30	Vacant
Unemployed, without qualification	20	-	-
Total	130	100	

Labour force surveys are generally a good source for employment and unemployment data. Job vacancy data are usually collected from employer surveys. In low- and middle-income countries, data on job vacancies are more readily available for public sector jobs, but are more difficult to obtain for private sector jobs.

Another dimension of employment that warrants further analysis is the number of hours worked, or full-time equivalent, for each worker. Many health workers are facing a higher workload to make up for staffing shortages, and the increase in hours worked is leading to problems with quality of care and staff burnout. In the United States, there has been a trend towards physicians of all ages working fewer hours, with the decline in hours worked particularly large among younger physicians, compared to physicians of a similar age from a decade ago. If this trend continues, by 2032 the supply is expected to be 20 900 full-time equivalent physicians lower than if hours worked patterns remained unchanged [18].

Measuring job turnover and labour turnover rates

While employment statistics provide a snapshot in time, they do not give an indication of the dynamic aspects of the labour market. The dynamic flow of workers is better captured by indicators such as job turnover rate and labour or employee turnover rate.

Job turnover rate is the net change in employment between two points in time – the total number of jobs created minus the number of jobs closed. A positive job turnover means an expanding job market, and a negative one means a contracting job market. Labour or employee turnover rate refers to movements of individual workers into jobs (employment) and out of jobs (separations) over a given period.



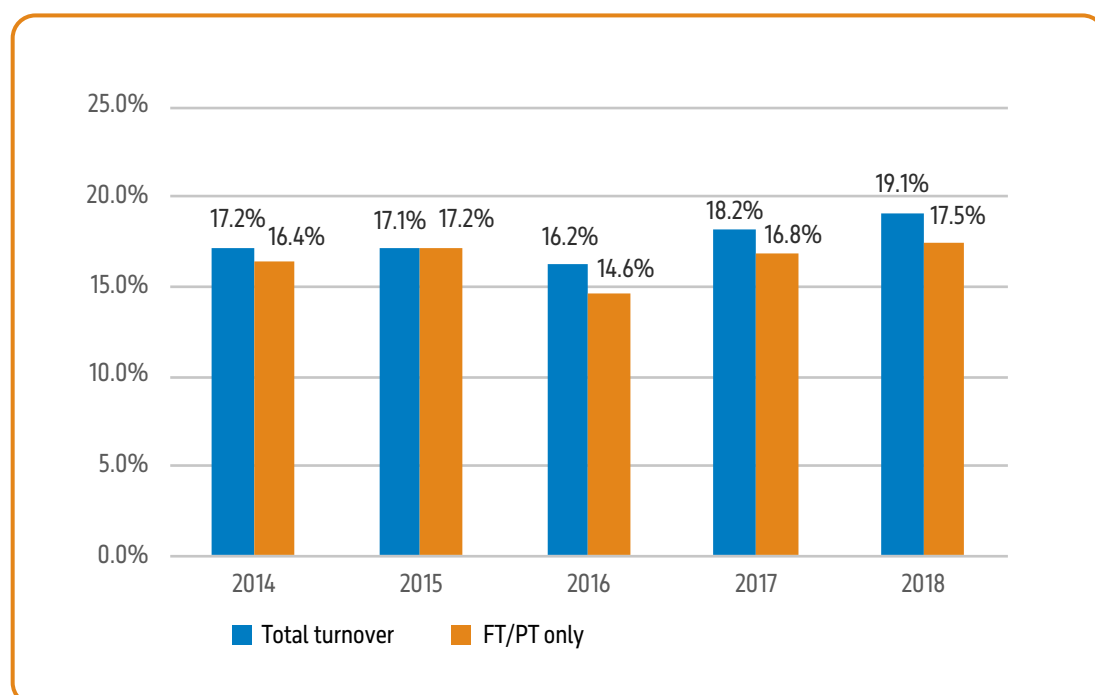
High rates of labour turnover might suggest a flexible labour market, but it is also more costly to the employer because of the added cost of recruiting and training new workers. A high labour turnover rate is often associated with skills mismatches, whereby overqualified workers face wage penalties with respect to their colleagues who are better matched to their jobs. Overskilled workers express lower levels of job satisfaction and tend to move jobs more frequently to look for a better-matched job [1, 19]. A high staff turnover rate is also observed in situations where employers face a shortage of skilled workers and rely on temporary workers to fill the gap. **Box 11.4** describes the recent rise in labour turnover rate in United States hospitals, and their growing reliance on costly temporary workers to fill the gap in skilled nurses.

Box 11.4 Increasing labour turnover rate in United States hospitals, 2014–2018

In the United States, hospital staff turnover has been on the rise in recent years. This has been a major concern to hospital managers, since a high staff turnover rate is seen as a leading indicator of future financial constraints, as well as a risk to patient and worker satisfaction. Figure 11.7 shows the national average hospital staff turnover rate from 2014 to 2018. Since 2014, the average hospital turned over 17.8% of its workforce. A leading cause of the high turnover rate is the acute shortage of skilled nurses. To fill the gap, many hospitals are relying on overtime and on temporary and special “floating” workers such as travel nurses.

In the United States, travel nurses have come to play a vital role in helping hospitals fill gaps in staffing at critical times of need. Because travel nurses are carefully pre-screened for qualifications, hospitals are assured of their skills and competence. But travel nurses cost significantly more per hour than regular nurses and add to the overall cost of care.

Figure 11.7 Annual record of hospital staff turnover rate, 2014–2018



Notes:

Total turnover refers to total staff turnover, including full-time, part-time, contractual, temporary or “floating” staff such as traveling nurses.

FT/PT only refers to staff turnover of full-time and part-time staff, and excludes other types of staff.

Figures based on United States survey of 221 health care facilities in 47 states conducted in 2019 [20].

Measuring expectation mismatches

The problem of expectation mismatches has been identified as one of the major factors leading to labour market mismatches. Economic models of labour markets rely on wages as the key indicator of job valuation by the employer and the employee and build the model around this figure. In real life, there are many aspects of the job that are not captured in wages and thus remain as “unobserved” factors in the job selections made by workers. This has been particularly noticeable in addressing the problem of rural recruitment and retention. Current evidence on effectiveness of financial incentives (salary increases or bonus payments) on rural retention is mixed, and while monetary incentives can enhance the motivation and retention of health professionals in rural and remote areas, non-monetary incentives can be equally important in the job preferences expressed by workers [21].

At the core of this problem is the mismatch of expectations between employers and workers. A better understanding and assessment of worker expectations and job preferences will help to identify relevant interventions. The *WHO guideline on health workforce development, attraction, recruitment and retention in rural and remote areas* recommends specific interventions to improve attraction, recruitment and retention of health workers in rural areas, which need to be combined according to the country context [22].

Determining job preferences requires well designed qualitative research to capture all the major factors influencing a worker’s decision to take on a job. The interview instrument and the interviewer selection and training will need careful design to avoid projecting a biased or preconceived notion of what constitutes an ideal job. Often, job preferences include factors that lie outside the health sector, reflecting the wide range of issues that affect individual decisions about work and quality of life. Factors that influence job preferences are also multifaceted, and it is difficult to measure the level of preference for one factor relative to all the other factors. The data on job preferences gathered through qualitative research can be used to generate quantifiable information through use of discrete choice experiment (DCE). **Appendix 11.3** presents an example.



An additional way to assess expectation mismatches is to measure the number of strikes in the health sector, their duration, and their frequency (Box 11.5).

Box 11.5 Strikes and the role of unions in health labour markets

Market power (and asymmetries in market power) in labour markets can occur when employers are large enough to exert downward pressure on wages or provide poor or unsafe working conditions and still attract employees. In such markets, unions can play an important role in redressing the asymmetry of power. Unions work as a collective to negotiate with employers over pay, working conditions and regulations. When unions are large, they can also exert market power by restricting labour and increasing wages above the equilibrium rate. In either situation, labour disputes can occur. Disputes between employers and unions, if not well arbitrated, can lead to the withdrawal of labour – a work stoppage or, most common in the health and social sectors, a strike.

When strikes occur in the health sector they can have implications for the provision of health services and for health, as well as important political, organizational and financial implications [23]. Health worker strikes appear, at least in lower-income countries, to be increasing in frequency and cover issues related to pay, delayed or irregular pay, working conditions, safety and governance [24]. In addition to ensuring decent working conditions, policy-makers should work to promote intersectoral collaboration to address the multi-factorial causes of health worker strikes, such as weak labour regulations, salary structure and payment mechanisms, national macroeconomic and financial constraints, and security risks [25].

Strikes have important implications for health labour markets. Building on ILO guidance [26], it is recommended that the following information be collected to calculate relevant indicators relating to strikes in the health sector:

- number of stoppages in a year;
- number of working days lost through stoppages;
- number of health workers and occupations implicated in the strikes and total number of workers;
- motives for the strike.

Table 11.2 presents an example of labour disputes in Zimbabwe. An HLMA could use the information presented in Table 11.2 to prioritize analysis into the political economy in Zimbabwe, including wage setting and pay and working conditions, to better understand the labour market foundations of these labour disputes.

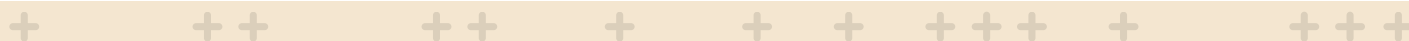


Table 11.2 Data on labour disputes in Zimbabwe

Indicators	2016	2017	2018
Number of stoppages	1	1	3
Working days lost through stoppage	30	21	75
Workers involved in stoppage	Doctors Junior doctors	All health workers	All health workers Doctors Junior doctors Nurses
Number of workers implicated	No data	No data	No data
Motives	Governance	Pay	Working conditions Pay Shortage of supplies

Source: Russo et al. [24].

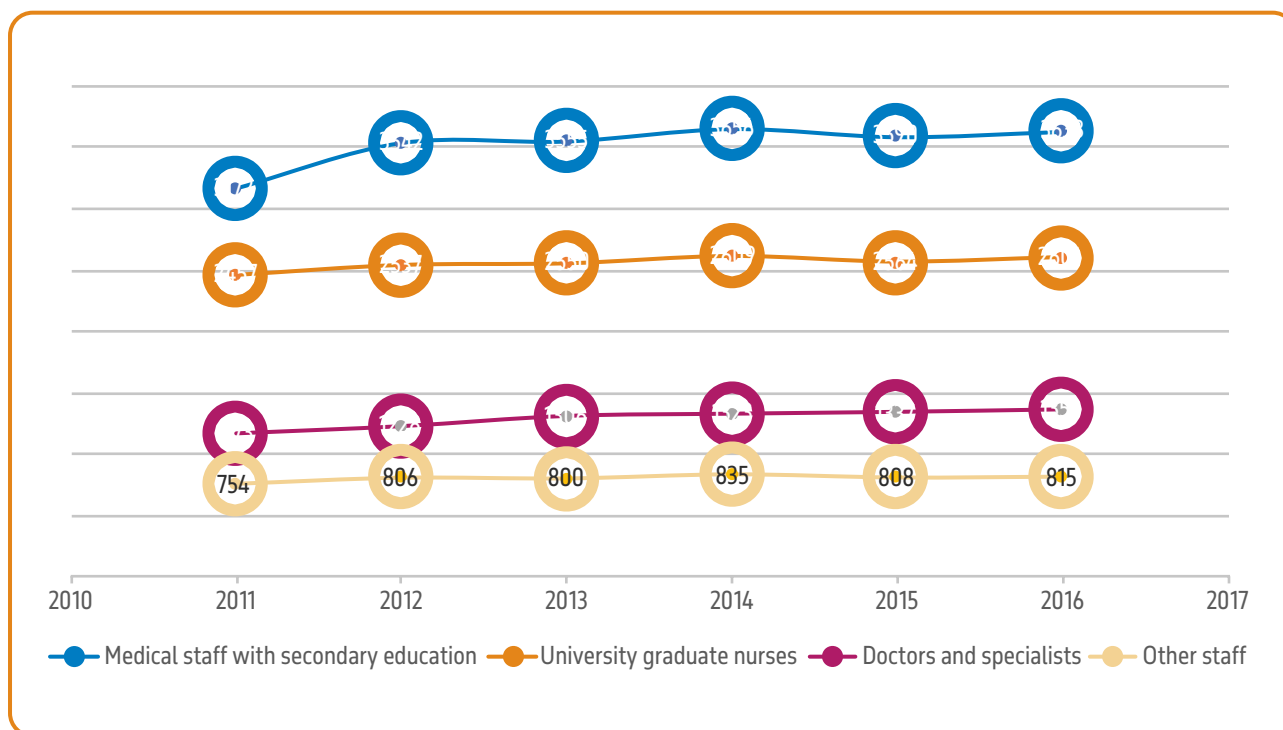
Measuring skills mismatches

Measuring skills mismatches using consistent and comparable methods is still rare. The OECD Programme for the International Assessment of Adult Competencies (PIAAC) conducts a comprehensive international analysis of adult skills every 10 years. The measure of skills mismatches is based on qualitative information obtained through a self-assessment further verified by quantitative information on skill proficiency. There is a proposal to develop an international skills assessment tool for health workers based on PIAAC methods, but the initiative remains at a feasibility stage [19].

The PIAAC approach, while methodologically robust and internationally comparable, is complex and costly to implement, and may not be practical for most non-OECD countries. Other less precise, but more accessible, approaches are available to measure skills mismatches. One is to assess qualification mismatches by comparing a benchmark qualification level, which can be measured by the International Standard Classification of Education (ISCED) level required for the job, with the actual qualification of the worker to determine whether they are overqualified or underqualified for the job. **Figure 11.8** presents data from Republika Srpska, Bosnia and Herzegovina, where a majority of health staff report having secondary school education only. By themselves, these data do not confirm the possibility of underqualification and underskilling among the medical staff, but they provide the initial step towards identifying potential areas for further enquiry.



Figure 11.8 Number of medical staff in Republika Srpska, Bosnia and Herzegovina, by education level, 2011–2016

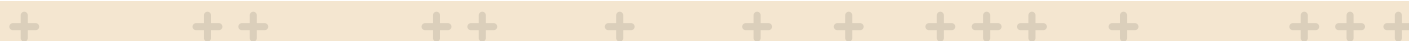


Source: Public Health Institute of Republika Srpska statistical data, compiled by the author.

While qualification mismatches are easier to measure and are broader in their coverage than skills mismatches, they do not take into account skills gained or lost after formal education – for example, through on-the-job learning, continuing education and practical experience. From this perspective, measurement of skills mismatches is more precise, because it takes into consideration relevant skill gain, loss or obsolescence. Researchers and policy analysts need to balance the trade-off between cost and precision in designing appropriate studies to measure skills mismatches.

Measuring labour market discrimination

Discrimination by employers against certain groups, such as women, appears to be widespread although often not measured, and at times even deliberately hidden. In low- and middle-income countries, there is extensive evidence of gender gaps in wages for the general workforce, but the empirical evidence about gaps in health occupations remains limited. Measuring discrimination will require data that can be stratified by clearly identifiable groups. Since minority groups could be much smaller than the general population, it might be necessary to oversample the group to obtain a sufficient sample size of the stratified data to ensure statistically significant results.



Differential treatment is not necessarily discriminatory treatment. For example, productivity considerations might be a significant motivation behind discrimination against older workers or the disabled [27]. Ensuring fair wages and decent working conditions for these groups will require broader discussions on the social benefits of ensuring employment for them, and whether current policies support or undermine their active employment. To give another example, women generally work shorter hours and hold positions in lower-paying jobs, and these attributes could partly explain their lower wages.

Traditional analysis of labour market discrimination has thus focused on differences in specific outcomes among individuals of certain groups with similar characteristics. However, recent literature has paid more attention to the consequences of differences in perception, due to stereotypes embedded in society that are not necessarily correlated with productivity or other employment outcomes. A study from Peru (Box 11.6) offers a good example of well designed research that attempts to control for these worker characteristics to identify underlying discriminatory practices [28].

Box 11.6 Gender wage gaps among physicians in Peru

A WHO analysis based on median wages from labour force survey data from 21 countries showed that health workers face gender-related gaps in pay, with female health workers earning, on average, 28% less than males. This is slightly greater than global estimates of gender pay gap data, showing that women are paid approximately 22% less than men. The gender pay gap among health workers can be explained by several factors: different working hours between men and women account for 6.9% of the pay gap; a sizeable portion of the overall pay gap is attributable to occupational segregation within the sector (9.9%); and an unexplainable gap of 11.2% remains for similar occupations and working hours [29].

A 2019 study from Peru identified many reasons why women in medicine are paid less than their male counterparts. First, female physicians are mainly concentrated in lower-paying specialties such as paediatrics, while male physicians are concentrated in higher-paying specialties such as surgical specialties. Second, on average women attend to fewer patients than their male counterparts.

To test the existence of discrimination beyond these factors, the Peru study analysed the wage gap data controlling for differences in individual and labour characteristics, such as age, education and specialty. The study measured the residual (unexplained) gap after adjusting for these characteristics and found that the gap remained significant after controlling for these other characteristics. The persistence of this significant unobservable factor could be attributed to prejudices against female physicians for social, cultural and personal reasons.

Source: Amaya and Mougenot [28].



11.3.4 Strategies to address labour market mismatches

Labour market mismatches involve many factors and players, and there is no single simple solution to address their negative effects. In order to develop corrective strategies, it is key to have a good understanding of the factors influencing supply and demand (Modules 7 and 8). While training more is a common supply-side strategy to address shortages, the HLMA also allows identification of issues that call for demand-side policies addressing health workers' expectations.

Table 11.3 presents examples of policies to address some health labour market mismatches. For each mismatch, different causes exist and various combinations of policy strategies are possible.

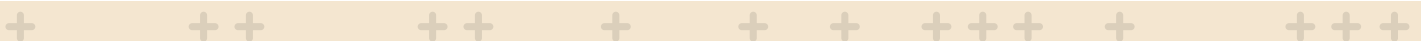
Table 11.3 Examples of mismatches and possible corrective strategies

Type of mismatch	Possible causes	Examples of strategies
Quantitative: unemployment	Lack of absorption capacity by the labour market (not enough jobs)	Relax financial constraints for recruiting more health workers
	Mismatch between workers' expectations and jobs offered (some workers prefer not to enter the labour market)	Adapt job characteristics (remuneration, flexibility, work environment) to attract and retain workers with the desired profile
Quantitative: vacancies in certain categories of jobs	Shortage of certain categories of staff	Educate more workers in these categories
	Mismatch between employees' expectations and jobs offered	Improve health worker performance to compensate for the impact of unfilled positions
	Lack of information on vacancies	Recruit abroad Develop incentives for attracting and retaining workers with the desired profile Broader and more targeted dissemination of information about vacancies



Type of mismatch	Possible causes	Examples of strategies
Quantitative: vacancies in certain geographical areas (rural, remote, urban poor) and neighbourhoods	<p>Low attractiveness of working conditions and of living conditions</p> <p>Lack of familiarity of workers with these areas</p>	<p>Develop sets of financial, professional and personal support incentives to make jobs in these areas more attractive</p> <p>Introduce community service modalities, ensuring that they contribute to the professional development of concerned workers</p> <p>Recruit candidates for health occupation education from these areas</p> <p>Expose future health workers to these areas during their studies (rotations, placements, meetings with workers from these areas)</p>
Qualitative: worker competency mismatches	<p>Outdated curricula</p> <p>Lack of access to continuing education</p> <p>Criteria for the selection of students not adapted to desired professional profile</p>	<p>Regular revision of contents of curricula, based on assessment of competency needs. This can be done as part of a process of accreditation of education programmes</p> <p>In addition to offering continuing education programmes, adopt measures that ensure that workers have the time and resources to participate. Provide in-service training</p> <p>Adopt selection procedures that assess soft skills (communication, empathy) in addition to academic performance</p>
Qualitative: workforce that does not reflect the diversity of the population it serves	Biases affecting some categories of workers, e.g. women, ethnic minorities	<p>Active recruitment of underrepresented populations' candidates in health professional education</p> <p>Develop incentives to attract women in leadership positions in health services</p>

Finally, it is also important to bring together the key actors and stakeholders identified in the preceding steps, debate the findings and discuss issues requiring trade-offs between the different interest groups; then move towards compromise and agreement on shared goals and joint actions, including measures to evaluate progress.





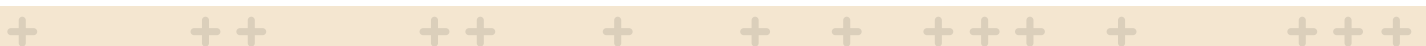
11.4 Conclusion

While training more is a common supply-side strategy to address shortages, this module has highlighted the importance of accounting for demand-side policies as well. The interaction of the supply of and demand for health workers is at the core of health labour market outcomes.

This interaction is influenced by many factors that need to be reviewed and analysed in order to better understand the dynamics of the health labour market and facilitate the development of policies addressing mismatches.

In particular, to address effectively the adverse impacts of mismatches, it is important to identify the different types of mismatches, namely (a) shortage or labour surplus; (b) skills mismatch; and (c) labour discrimination or bias exercised by the employer.

Many actors influence the demand for and supply of health workers. Therefore, issues and potential policies to address them identified by the HLMA ought to be discussed with key actors and stakeholders.



Appendix 11.1 Monopsony and effects of trade unions

Monopsony. A monopsony – a market structure in which there is only one buyer – gives the employer market power in determining the number and wages of workers. Even if an employer is not a pure monopsonist, it may be able to exercise a degree of monopsony power due to geographical and occupational lack of mobility of workers, which makes it difficult for workers to switch jobs and find alternative employment. According to economic theory, monopsony will lead to economic inefficiency because a monopsonist will avoid hiring more workers to keep down the cost of labour and maximize profit. Thus, monopsony will lead to lower wages for workers than in a competitive market. Overall, monopsony will also result in fewer workers being hired.

Effects of trade unions and professional associations. These effects are felt when workers organize themselves to exert a counterweight to the influence of employers. Trade unions have several functions: they represent workers with regard to pay and working conditions; bargain for higher wages with the possibility of going on strike; and coordinate with employers to implement new working practices and negotiate with workers. The collective bargaining power of professional groups has a measurable influence on wages as well as on the number of workers in a profession.

Numerous associations representing workers from different professions influence the health labour market. These are exclusive associations, in that they control membership through fees and credentials for entry into the profession. The trade unions might be more or less powerful and this could distort the wage gaps between those professions. In some countries, they might play a role in restricting labour supply in order to maintain higher wages for their members, and resisting the increase in the role of other professionals to protect their own scope of work. The role of unions and professional associations is discussed in Module 4 on the political environment of the health labour market.

Monopsony and trade unions. In this case, the structure of the health sector labour market is dominated by the coexistence of a monopsony employer (such as a government or public entity) and strong trade unions (professional associations). In general, this structure tends to raise the wage rate of the workers relative to a purely monopsonist market because the trade unions are able to exercise collective bargaining power to negotiate wages above the level offered by the employer in a purely monopsonist market.

Complexity of the labour market structure in the real world. The roles and functions of unions and professional associations are complex because there are many categories of professionals with divergent skills, interests and needs.



Yet another key assumption made in the idealized models is that employers are able to determine the value of an additional worker in terms of additional service outputs. However, assigning economic value to health care services remains a challenge, especially in adjusting for quality of care or in relating service outputs to health outcomes [30, 31]. Moreover, health care services are generally provided by teams of workers with different skills and qualifications: thus, defining the relative contribution of each member can be a challenge.

In contrast to high-income countries, health labour market structure in low- and middle-income countries is often characterized by a significant number of private sector employers who compete for workers outside a regulated framework. The presence of these employers shifts the labour market towards a competitive model, which will undermine the ability of monopsonists (such as the government) to set the wages or numbers of workers. In low- and middle-income countries, it is common to observe that public sector employers face difficulties in recruiting and retaining qualified health professionals due to the higher wages offered in the private sector. This results in vacancies in the public sector or in dual practice where the workers spend part of their time in the public sector and the rest in the private sector to augment their income. However, wages are not always higher in the private sector. In the case of nurses, wages in India are in most cases lower in the private sector than in the public sector, reflecting to some extent the weaker capacity of nursing unions and associations to negotiate wages. Overall, since private sector employment data are difficult to obtain in most low- and middle-income countries, the impact of these informal or unregulated private sector employers on the health labour market is generally less studied and less understood; consequently, it is more difficult to describe accurately the labour market structure in low- and middle-income countries.



Appendix 11.2 Health workforce planning and projection

Today's workforce is the result of many decisions, big and small, taken by many different persons or institutions over the past 40 or more years. Similarly, today's decisions will also shape and affect the health labour market in the future.

As a result of the particular characteristics of the health labour market and health care delivery system, in particular market failures, market mechanisms alone will not achieve an adequate demand for and supply of health personnel from a societal perspective. Hence, in society's best interest, public interventions, such as stewardship and human resources planning and projection, can contribute to and partially or totally correct for these market failures and facilitate the attainment of an adequate supply of and demand for health personnel. Forecasting and planning for the future numbers of health personnel required, and developing policies to meet such figures, are common to any health care system. Countries' desire to meet population health needs and to avoid social welfare losses resulting from a shortage or an oversupply are factors explaining, to a large extent, the importance attributed to human resources planning in the context of public health policies.

The literature differentiates between various approaches – each having its own advantages and limitations – to forecasting and planning health personnel requirements, such as health needs methods, personnel-to-population ratios and service targets [32].

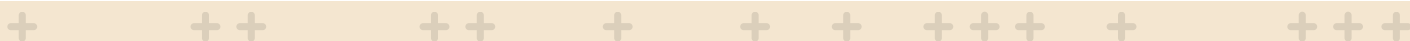
Health needs method. This is a more in-depth approach that explores likely changes in population needs for health services, based on changes in patterns of disease, disabilities and injuries and the numbers and kinds of services required to respond to these outcomes. This approach entails collecting and analysing a range of demographic, sociocultural and epidemiological data. Although utilization methods can be pursued with reasonably accessible data, health needs approaches require detailed data that may not be available for all components of the health care system.

Workforce-to-population ratio method. This is a simple projection of future numbers of required health workers on the basis of proposed thresholds for workforce density (for example, physicians per 10 000 population). A main issue is how to determine the threshold. This approach is least demanding in terms of data, but does little to explicitly address other key variables, aside from population growth, that can be expected to affect the type and scale of future health services provision and the associated workforce. This approach is based on the assumption that there is homogeneity at the level of the numerator (all physicians are equally productive and will remain so) and of the denominator (all populations have similar needs, which will remain constant).



Service demands method. This approach draws on observed health service utilization rates for different population groups, applies these rates to the future population profile to determine the scope and nature of expected demands for services, and converts these into required health personnel by means of established productivity standards or norms. Again, this approach requires consideration of multiple variables, as well as collecting and using the data relevant to these variables. This approach can be combined with the health needs approach by defining workforce requirements options of care pathways.

Service targets method. This is an alternative approach that specifies targets for the production (and presumed utilization) of various types of health services and the institutions providing them based on a set of assumptions, and determines how they must evolve in number, size and staffing in accordance with productivity norms.



Appendix 11.3 Example of a discrete choice experiment

A discrete choice experiment (DCE) generates quantitative information on the relative importance of various job characteristics that influence the job choices of health workers, as well as the trade-offs between these factors and the relative intensity of preferences. This method provides information on the probability of take-up of specified jobs that can be used to select the most appropriate strategies for recruitment and retention in underserved areas. Detailed guidance on how to design and conduct a DCE is available in the publication *How to conduct a discrete choice experiment for health workforce recruitment and retention in remote and rural areas: a user guide with case studies* [33]. A systematic review of the application of DCE to inform health workforce policy is available in an article by Mandeville, Lagarde and Hanson [21].

Box 11.7 presents a case study on the use of DCE in Senegal.

Box 11.7 DCE on recruitment and retention of health professionals in remote regions of Senegal

A DCE study conducted in Senegal examined the characteristics of jobs that are most effective in retaining health workers (physicians and non-physicians) in remote and rural postings. A set of significant job characteristics were identified based on qualitative research, and these were used to design a series of "choice questions", which are presented to the health workers to elicit their preferences.

Choice question 3

Rural job A		Rural job B	
Period of assignment	2 years	Period of assignment	4 years
Provision of a rural job allowance	Rural job allowance provided	Provision of a rural job allowance	No rural job allowance
Equipment	Inadequate	Equipment	Adequate
Accommodation	No provision of accommodation	Accommodation	Accommodation provided
Contract	Permanent (ministry of health)	Contract	Temporary (local)
Training opportunities	No provision of training opportunities	Training opportunities	Training opportunities provided
Types of support	Supportive supervision by health administrators	Types of support	Clinical advice and support from peer health professionals

Which of these jobs do you prefer?

Rural job A

Rural job B

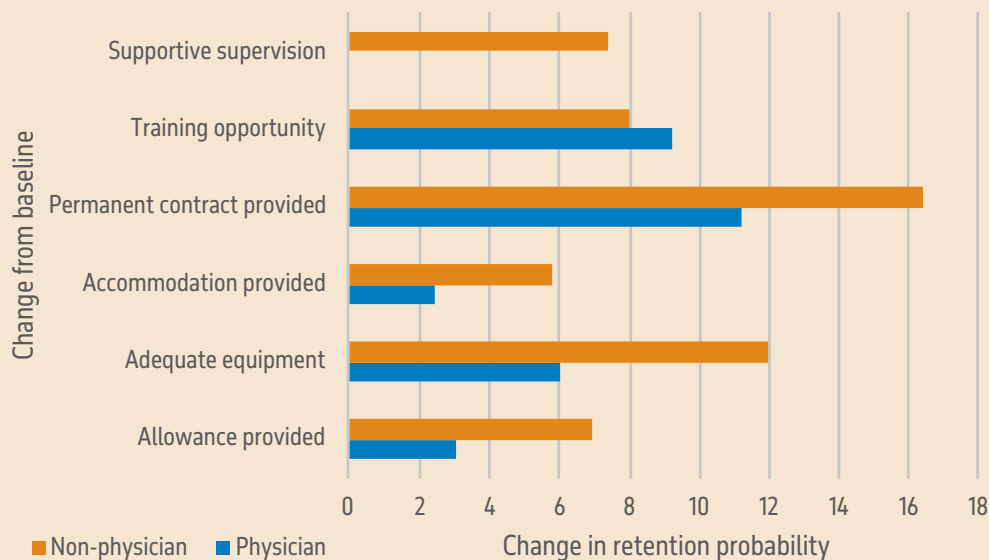
Would you accept this over your current job?

Yes

No



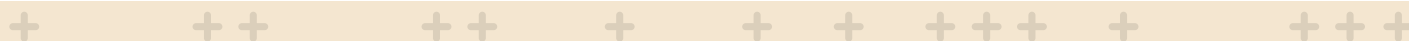
Based on the compilation of responses to the choice questions, the DCE can calculate the contribution of each factor towards the likelihood of retention over baseline. The significant findings are summarized in the bar chart shown below. "For both physicians and non-physicians, a permanent contract is the most important determinant of rural job retention, followed by availability of equipment and provision of training opportunities. Retention probabilities suggest that policy reform affecting only a single attribute is unlikely to encourage health professionals to remain in 'difficult' regions" [34].



Source: Honda et al. [34].

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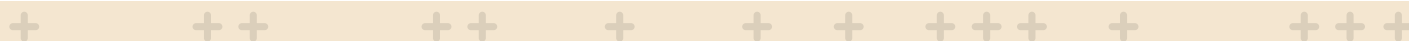
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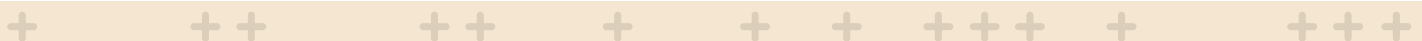


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Section 4

From health labour market analysis to policy

Module 12 presents how to use the labour market analysis results to inform the health workforce policy-making process. The module starts with the various definitions of evidence-based policy-making, their evolution, and their impact on policy-making in the public health sector. Then, it discusses the findings of systematic reviews of evidence-informed policy-making over the last decade and of barriers and facilitators commonly agreed upon by researchers as requiring attention during the policy-making process. Finally, it proposes a health workforce policy-making process framework with recommendations on how to better use evidence drawn from the health labour market analysis.



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1. **Engagement phase.** Researchers should hold regular meetings with decision-makers to improve their comprehension of and trust in the results of the study. The results should be communicated in clear, simple language to be sure that they are well understood.
 2. **Communication phase.** Recommendations should be translated into policy options backed up by scientific studies showing their value and effectiveness.
 3. **Feasibility analysis phase.** The economic, social and political feasibility of the policy options should be analysed to better understand the context in which they would be implemented and thus increase their chances of being accepted.
 4. **Prioritization phase.** Policy options are prioritized based on the feasibility analysis.
 5. **Policy development phase.** The prioritized options are then used to develop a health workforce policy or investment plan. This process can be adopted using implementation monitoring and evaluation mechanisms.

12.1 Introduction

Addressing health workforce challenges is key to achieve SDG 3: “Ensure healthy lives and promote well-being for all at all ages”. These challenges include an absolute shortage of qualified health workers, especially in low-income countries; inequitable distribution of health workers, with too few in remote and rural areas; gender issues, such as harassment and violence; losses to emigration; staff absenteeism and poor motivation; and a skills mix not aligned with current and future health and service needs. Additionally, there is growing recognition that the achievement of universal health coverage depends on the availability, accessibility, acceptability and quality of a fit-for-purpose workforce, particularly at the primary health care level.

Ways to address the mismatch of health workforce supply and demand have been the focus of health system research at the national and global levels for more than a decade. Despite the growing availability of such research, national policy-makers are not fully making use of research findings [1, 2]. This is a critical point to consider when aiming at successfully transforming HLMA results into evidence-informed policy. This challenge related to the lack of use of research findings is contrary to WHO recommendations to rely on evidence when developing policy [3].



Public policy-making is a politically charged and complex process, influenced by many actors, factors, priorities and types of information. Research evidence competes with these other factors in order to influence policy decisions. Such factors include politics, ideology, values, power dynamics, available resources, interests, habits and traditions. Despite more than a decade of sustained efforts to improve policy-making, civil servants, politicians and academics continue to express concern as to whether policy is ready to meet future health workforce challenges. When policies fail, the costs [monetary or otherwise] can be significant, as has been the case for health workforce migration policy in many countries.

To ensure that health workforce policies achieve their objectives, policy-makers need clear information about the effectiveness, benefit and impact of the policy options presented to them. Health ministries can increase the quality of their policies by requiring their staff to clearly define the policy problem and prioritize their options, using relevant evidence.

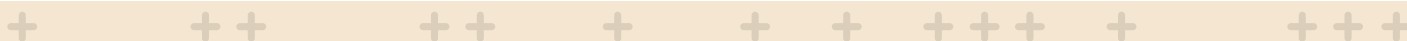
Researchers and policy analysts provide useful advice on how to overcome barriers between the production of evidence and its use by policy-makers. This module will discuss how policy-makers can benefit from labour market analysis and other evidence to improve health workforce policy development.

The remainder of this module is divided into three sections:

- a presentation of the various definitions of evidence-based policy-making, their evolution, and their impact on policy-making in the public health sector;
- a presentation of findings of systematic reviews of evidence-informed policy-making over the last decade and of barriers and facilitators commonly agreed upon by researchers as requiring attention during the policy-making process;
- the proposal of a health workforce policy-making process framework with recommendations on how to use evidence drawn from research, such as labour market analysis, reports and administrative data, and control the institutional, social and international factors impacting the decision-making process.

12.2 Evidence for public health policy-making

Evidence-informed health policy-making, as an approach, is intended to ensure that decisions are informed by the best available research results. How this is done may vary and depends on the types of decision and on the context. Various authors claim that information that could be considered evidence for health policy-making should be the product of a systematic and transparent research process [4-6]. The transparency of the process should make it possible to examine the sources of the evidence used to inform policy decisions. For example, Module 4, on political economy analysis, suggests using quantitative discrete choice experiment methodology to complement qualitative stakeholder analysis so as to better understand the



workplace preferences of health workers. This is an example of using rigorous (systematic and replicable) methodology to provide evidence that informs policy-making. However, discussion is still ongoing among policy researchers as to what information can be considered “evidence”. Lomas and Brown [7] define two different concepts of evidence: colloquial evidence refers to relevant facts at a more personal and contextual level (for example, experiential knowledge, societal values, political judgement, rules, habits and traditions), whereas scientific evidence is derived from systematic, replicable and verifiable methods of collecting information and facts. No decision is based solely on scientific evidence, which alone does not constitute a policy. The decision-making process is fundamentally politicized because value-based judgements are inherent in research production [8]. It is the combination of facts derived from studies or empirical experiments, their interpretation, values, and personal and institutional perspectives or interests that together form a policy [9, 10].

While recognizing that there are diverse typologies of evidence relevant to the development of policy and practice, this module is concerned with the use of research evidence in its broader sense, that is, all kinds of evidence related to health workforce analysis, as long as it has been collected through a systematic research process. This may include any systematic methodology of critical investigation and evaluation, data collection, analysis and codification related to a scientific research study such as HLMA. Contextual factors that can encourage or limit the use of evidence will also be discussed.

12.3 Barriers to and facilitators of the use of evidence for policy-making

Despite an increase in health system research, policy-makers and managers still complain that research evidence does not always directly respond to their concerns [6]. Moreover, managers and policy-makers in general have a mixed view of the helpfulness of recommendations arising from applied research [11]. Policy-makers commonly cite the complexity of HLMA and the difficulty of linking the various results of such studies to the decision-making process in a coherent manner.

The systematic review by Innvaer et al. [12] summarizes the evidence from interview studies on facilitators of and barriers to research uptake by health policy-makers. The most commonly reported facilitators were (a) researchers having personal contact with policy-makers; (b) timeliness of the publication, including availability and accessibility of findings when needed by policy-makers; and (c) the inclusion of summaries with policy recommendations for dissemination among policy-makers, the media and other stakeholders.

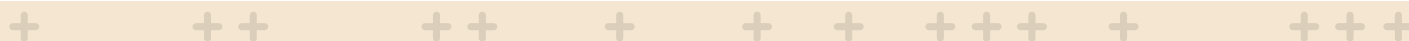
The most commonly reported barriers were (a) the absence of personal contact upon the study’s completion, with results not communicated to the key stakeholders who needed them;



[b] lack of timeliness or relevance [the results were not available when policy development was undertaken, or policy-makers found the results inaccessible because they were not translated into a language they could understand]; and [c] mutual mistrust [researchers did not trust the policy process and policy-makers felt that the researchers were manipulating them]. The distribution of power among policy-makers and other stakeholders involved in policy-making, as well as budget constraints, influence whether research evidence is used.

Lavis et al. [11] conducted a systematic review to identify ways to improve the usefulness of such reviews for health care managers and policy-makers. They found interactions between researchers and health care policy-makers, among other factors, to be important. The authors suggest that such interactions could be organized in various ways: researchers can systematically prepare policy or technical briefs on their research and send them to policy-makers; researchers can hold regular meetings with policy-makers to discuss health system challenges; researchers can make themselves available to conduct studies reflecting policy-makers' current concerns; and timing and timeliness can increase the prospects for research use by policy-makers. Interviews with health care managers and policy-makers in Canada and the United Kingdom indicated these would benefit from having relevant information highlighted for them [that is, not just the scientific findings but also the contextual factors that affect a review's local applicability and information about the benefits, harms or risks, and costs of interventions], and from having reviews presented in a way that allows for rapid scanning for relevance followed by graded entry [for example, one page-long summary of take-home messages, policy brief, three-page executive summary]. The researchers found that contextual factors influencing the utilization of evidence were rarely highlighted in studies selected for systematic review. Recommendations were often provided but not applicable as such, and graded entry formats were rarely used [11, 13].

A systematic review by Orton [14] synthesizes empirical evidence on the use of research evidence by public health decision-makers in settings with universal health coverage. It is among the most quoted studies analysing evidence-informed policy-making, because it includes systematic review papers focusing on the influence of context and power distribution during the policy-making process in Europe, Canada, Australia and New Zealand. Barriers to the use of research evidence included decision-makers' negative perceptions of research evidence, distance between researchers and decision-makers, the culture of decision-making [managers were likely to make a decision and subsequently seek evidence to justify it], competing influences on decision-making, and practical constraints [administration rules]. Suggested [but largely untested] ways of overcoming these barriers included research aligned with the needs of decision-makers, clearly highlighted key messages, and capacity-building for researchers so that they can better understand the political constraints, as well as for policy-makers so that they will increase their capacity to collect evidence and translate it into policy information.



The findings of the 2014 systematic review of Oliver et al. [15] were consistent with those of the 2002 study by Innvaer et al. [12]; barriers to evidence-informed policy-making remained the same, but the 2014 review included various context studies (for example, across high- and low-income countries, justice and health sectors). One key finding of the 2014 study was that, instead of research evidence, policy-makers are more accustomed to making decisions based on other types of evidence, for example local data and contextual evidence such as routine data. Research evidence was just one source of information used. The most recent systematic reviews recognize that policy-making is determined as much by the decision-making context (along with other influences) as by routine data and research evidence [6, 16]. Policy-makers' perceptions form an important part of the picture, but not the whole.

In some low- and middle-income countries, policy-makers' utilization of research findings is similar. A study by Craveiro et al. [2] in Brazil and Portugal found that policy-makers in both countries had limited access to research evidence. Even though some were aware of the existence of studies, they had insufficient time to spend on lengthy reports and lacked skills to critically review their contents for decision-making.

Health sector policy-makers are well informed about recommendations provided by international organizations (such as United Nations organizations) in the form of guidelines and resolutions, available in various languages, to be translated into policy options. However, the selection of a given policy option is not based solely on the recommendations of global institutions [17]. Policy-makers also analyse the administrative, political, economic, social and financial feasibility and acceptability of the recommendations by using local information such as routine data and cost analysis [18].

In conclusion, there are various factors – ranging from timeliness and relevance to accessibility – that influence the use of scientific research in public health decision-making. It is generally accepted that research evidence is needed to justify policy interventions. However, policy-makers use colloquial evidence and contextual evidence in addition to research evidence when making decisions. **Table 12.1** summarizes the literature review findings.



Table 12.1 Summary of factors affecting evidence-informed policy-making

Determining factors	Recommendations for health labour market studies
Relationships between policy-makers and researchers	Include in the study team national researchers or national research institutions who already have a positive, long-running relationship with decision-makers at the ministries of health, finance, education, and others.
Various sources of evidence	In addition to scientific findings, contextual factors and information about the benefits, harms and risks, and costs of interventions also affect a review's local applicability.
Timeliness and relevance	Studies should be recent (published within five years) and made available before a new cycle of health workforce policy development or planning.
Availability and accessibility	Prepare political, financial and social feasibility analyses of the study's recommendations (including contextual factors affecting implementation of the recommendations). Results and recommendations should be presented by a human resources for health national champion, technical working group or observatory. Present the results to policy-makers, journalists and other influencers in various formats (for example, page-long list of take-home messages, executive summary, policy brief or technical brief, or press release).
Context	Include contextual information, such as stakeholders' power distribution, that could affect decision-making.
Frequent interaction and information sharing	Strengthen collaboration with policy-makers by holding regular meetings with the decision-makers who ordered the study. Inform them of progress made and intermediary findings and challenges.
Reliability	Do not manipulate study results, especially when adapting them for communication and media use, or when presenting data or extending the context of applicability.
Stakeholder analysis	Facilitate communication of the study results by ensuring that you have a thorough knowledge of the values, interests, perspectives and power distribution of the various stakeholders who might encourage or resist uptake of the study's recommendations.
Mutual recognition	Provide capacity-building for both policy-makers and researchers so that they better understand the various constraints. Policy-makers require strong capacity to collect evidence and translate it into policy information. After the study is published build trust and relationships: <ul style="list-style-type: none"> • continuously inform policy-makers of new findings related to health workforce studies • strengthen capacity in policy-making to understand the non-linearity of the policy process • organize regular meetings with decision-makers to discuss health workforce issues • be available to conduct studies that specifically address policy-makers' concerns.



Determining factors	Recommendations for health labour market studies
Perception of research evidence	<p>Target research to decision-makers' needs.</p> <p>Build researchers' capacity to understand political constraints, and build policy-makers' capacity to collect evidence and translate it into policy information.</p> <p>Hold regular meetings of researchers and policy-makers.</p>

12.4 Translating health labour market analysis into health workforce policy

This section provides recommendations to guide policy-makers and researchers in increasing the use of evidence, such as the HLMA results, in policy development and in understanding the institutional, political and international influences in the decision-making process. The recommendations that follow are not intended to be prescriptive, but rather to facilitate the public health workforce policy-making process. None of these recommendations, based on the literature review and on countries' experiences, is entirely new.

12.4.1 Labour market studies and the health workforce decision-making process

A variety of public policy-making frameworks have been designed in political science, anthropology, management science, and other fields [11, 19]. This section presents a framework derived from a synthesis of research findings in the health sector.

The aim of this section is to enhance understanding of the complexity of the public policy-making process as well as to stimulate the reader to think critically about how to prepare for effective health workforce policy-making.

Figure 12.1 shows the various stages of the health workforce policy-making process, which involves many actors and factors that constantly interact to shape policy decisions. The figure summarizes the link between research knowledge transformation and the policy-making process to ensure that policy decisions are informed by evidence. Though the framework is shown as a linear process, in practice, policy development is rarely a one-time event, but a continuous and iterative process. Decision-makers must seek more information at each stage, including research results, rules, administrative data, scientific information and consensus among key stakeholders.



The figure describes the evidence-informed health workforce policy-making process in five stages:

1. Summarize findings and engage stakeholders: after HLMA results are validated by a national scientific committee and by decision-makers, researchers should hold regular meetings with the decision-makers to build their trust in applying the results of the study. Results of the HLMA should be communicated clearly and simply.
2. From recommendations to policy options: recommendations should be translated into policy options justified by the findings.
3. Conduct and discuss political, institutional, financial and social feasibility analysis of policy options.
4. Priority setting: the options should then be prioritized.
5. Health workforce policy and plan development: the selected options will be used to conceive a health workforce policy or plan.

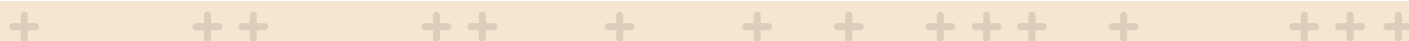


Figure 12.1 Evidence-informed health workforce policy-making process



Stage 1a: Build decision-makers' trust during and after the study

It is important to connect with the decision-makers directly concerned with the HLMA study; this can be done by supporting mutual learning through small, frequent and informal meetings with stakeholders, which helps to build trust between researchers and policy-makers. The quality and quantity of interactions are important for building and sustaining trust, and help put the HLMA recommendations into context.



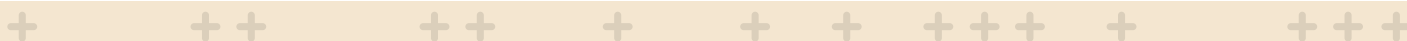
It is also important to bring together decision-makers who may be less directly connected (such as staff of ministries of labour or finance, civil servants) and other groups who could be affected by the HLMA (such as health managers, health professional associations, unions, students). Dialogue among less connected stakeholders will facilitate negotiations when it comes to adopting the recommendations. Involving stakeholders in the research process is helpful in a number of ways. It shows that users' perceptions, knowledge and experience (contextual evidence) is valued. It enables researchers to clarify and define their research or policy questions, facilitate routine data gathering and explain how to interpret recommendations based on the results [20]. Dialogue can also strengthen decision-makers' capacity to understand the findings, the challenges behind the decisions made, and how to adapt the information to their particular context. It also helps to highlight consistency between the HLMA results and the beliefs, values, interests (colloquial evidence), political goals and strategies of politicians, civil servants and other stakeholders. Stakeholder analysis is useful for identifying which stakeholders to inform during the policy-making process [21, 22].

Stage 1b: Engage policy-makers for using the HLMA results

Evidence is only useful when it is communicated in a way that can be understood. Merely building decision-makers' scientific knowledge is insufficient to convince them to take the decisions needed to improve health workforce management. The process for communicating HLMA results must be designed to catch and retain the attention of stakeholders who have influence over the decision-making process. Communication materials will vary depending on the target audience. However, evidence-based information is essential, regardless of the form or medium of the message.

Advocacy strategy. Effective learning requires effective communication with stakeholders. An advocacy strategy should be developed as an integral part of the HLMA process. The strategy should be discussed with who commissioned the HLMA. An advocacy plan should be designed to:

- determine the key audiences – researchers should help decision-makers determine the target audiences and which materials to use for each communication activity;
- identify advocacy challenges and opportunities;
- find out what the target audiences currently know or perceive;
- determine how each audience receives its information, and establish measurable objectives for each audience;
- define message points for each audience and determine the communication activities to deliver those messages;
- decide what resources are necessary to complete each communication activity;
- evaluate whether the objectives have been attained [23].



An advocacy strategy is particularly useful in contexts where there is poor health workforce investment and a large imbalance between the supply of and demand for health workers, or when ministries are beginning to prepare their budget for the following year, or before the beginning of the development of key national documents such as the human resources for health strategy, health sector strategy, or economic development plan, or in view of parliamentary discussions on national budget. However, efforts to influence policy are often a long-term endeavour and involve gradually shaping perspectives on policy. In this regard, active participation by researchers in various political and scientific events provides a way to reach a wider set of stakeholders and thereby influence policy.

Communication tools. HLMA results should be published in a format that is accessible to non-experts and written in a style that may be more appropriate for decision-makers than for peer-reviewed journals. This may involve producing research summaries or other documents, such as policy briefs, fact sheets or summaries of key messages in an electronic format. Policy briefs present the core findings of the study in a plain written format (see template for policy brief development in [Appendix 12.1](#)). It should include visuals (for example, graphs and charts) and make programmatic and policy recommendations. Eventually, working papers and articles can be prepared for publication in academic journals in order to present research findings to academic audiences. Citation in academic papers is a useful way to increase the visibility of the study results and create interest among donors [\[24\]](#).

Presenting HLMA results to policy-makers in the form of short summaries can render the information easier to assimilate and therefore more useful, but summaries must be clear and easy to read or scan quickly. They should also explain the nature of the information provided and its relevance to policy decisions. Decision-makers have limited time to focus on complex study results. Bulleted lists, shorter paragraphs and judicious use of headings are known to make scanning a summary easier (see an example of summarized findings in [Appendix 12.2](#)).

Researchers should assume that stakeholders have limited knowledge of methods used in the HLMA, and remember that written communication, particularly for a primary stakeholder, is not sufficient and should be used alongside other forms of communication, such as policy dialogue [\[20, 22, 24\]](#).

Using the media. The media, including television, traditional print media, and new electronic media such as a short video with key messages placed on YouTube, Twitter or Instagram, offer a means not only to engage with policy-makers and key stakeholders but also to shift popular perception on issues related to health workforce management ([Box 12.1](#) presents an example).



Box 12.1 Making a press release more newsworthy

The following measures can help make a press release more newsworthy and attention grabbing:

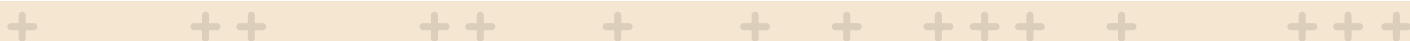
- develop a short (three pages) executive summary;
- put the summary on a website and include the link in any press release;
- in a press release, cover just a few main facts or statistics (most news stories are succinct);
- use clear graphs and tables, and provide short, simply written paragraphs;
- if possible, connect the report to a news hook to secure journalists' interest;
- if possible, show a change in data from the previous year;
- create quirky, interesting titles for trends of findings;
- if affiliated with an academic institution, issue releases with their letterhead and use their media office for press contacts;
- make numbers more meaningful by drawing comparisons or breaking them down into familiar units;
- explore the possibility of publishing a short summary of the report as an editorial in a newspaper;
- make a short video with the key messages and put it on YouTube, Instagram or other social media; this can be used as part of formal presentations (light relief from "death by PowerPoint") or the link can easily be emailed, WhatsApped or tweeted.

Source: International Labour Organization [24].

Stage 2: Translate recommendations into policy options

The limited applicability of research findings has been identified as a barrier to evidence-informed policy-making. Research findings, including HLMA results, can be complex and not take into account their impact on health and other social policies; for example, recommendations regarding the increase of incentives for health workers and not for workers from other public sectors (such as social workers) will inflate the demands of those who have been forgotten. WHO guidelines and strategic reports are a good starting point for identifying the policy options. However, the results of the HLMA may not include political, social or economic analysis that would facilitate their implementation. To translate HLMA recommendations into national policy options, researchers should search for systematic reviews and exploratory, contextualized case studies that provide evidence as to the effectiveness of their recommendations in various contexts. This can help show policy-makers that the recommendations have been implemented successfully in the past and make it easier to identify policy options. It will also help grading the empirical evidence of the recommendations.

Research that has already been reviewed for methodological rigour and then summarized to highlight the best quality evidence for consideration is also useful. Systematic reviews, guidelines and literature reviews can all be used to generate evidence for implementing HLMA recommendations. Many online resources and products containing such reviews are readily accessible. The Cochrane Collaboration Library is a good example; for an example of a systematic review summary, see SUPPORT summaries [25]. An overview of systematic reviews can provide policy options for implementing HLMA recommendations. However, multiple



competing policy options may exist for each recommendation, and there is often no empirical evidence to support the use of one option over another. Moreover, like HLMA recommendations, policy options may not be mutually exclusive [1].

Six review methods can be used to generate evidence related to HLMA findings:

- literature review: a non-systematic but quick collation and analysis of evidence;
- quick scoping review: a non-systematic overview of existing research on a specific topic;
- rapid evidence assessment: a short but systematic assessment on a specific topic;
- full systematic review: a broad, systematic review of existing research on a topic;
- multi-arm systematic review: a systematic examination of different types of evidence, with several research subquestions;
- review of reviews: a full systematic review of existing review studies [26].

When findings from systematic reviews are not directly applicable to a given setting (focusing on a particular region in the world), important lessons can still be drawn from them. Systematic reviews make it easier to identify policy options with an analysis of their impact on the health workforce supply and demand. Such reviews may give policy-makers an idea for a policy option that they would not otherwise have considered. Policy-makers may also gain insights into how options have been implemented in other settings and draw directly on the systematic review itself to develop a monitoring and evaluation plan. However, some systematic reviews do not provide adequate descriptions of the actual settings in which the studies were conducted, particularly health workforce management systematic reviews [27]. In such cases, decision-makers will not be able to know whether research evidence about an option can be applied to their local context. That is why feasibility analysis can help determine the applicability of policy options to a given national context and indicate how they can be adapted [Appendix 12.3 presents an example of policy option analysis].

Stage 3: Feasibility analysis

Feasibility analysis gives information on the effectiveness of a policy option, for example whether it can achieve the expected results, such as reduction of a worker shortage, increasing productivity or performance, or an education system responding adequately to health service needs.

Policy-makers need to know the circumstances in which a policy option can be applied to their country, how much its implementation will cost, the social and political consequences of implementing it, and how to maximize its benefits, minimize its harms and optimize its impact. Ideally, policy-makers would need all of this information, but in reality, instead of a full and in-depth analysis, some key points should be considered [Appendix 12.3 presents an example of policy option analysis].



Economic analysis. Most often, a cost–benefit analysis will assess the economic feasibility of a given option. However, it is recommended that a full evaluation be conducted, especially in the context of a reform or policy that will lead to a major change. Decisions to implement new health workforce programmes, or to maintain current practices, should be based on formal economic models, such as cost–effectiveness analyses and cost–utility analyses, which can help provide information about the balance between the desirable and undesirable consequences of a policy option [28]. Economic analysis should also consider the feasibility of increasing government health worker salaries without increasing salaries of other government workers – for example, by using the argument of areas of critical skill shortage.

Sociopolitical analysis. Labour policy decision-making takes place in a context of diverging social values and interests. Decision-makers are required to legitimize their decisions to various stakeholders. In a democracy, the decision-makers will be held accountable for the policy options that they choose. Analysing the perception of unions and professional associations and identifying any potential adverse effect each policy option may have on them will facilitate the choice of which interventions will be approved by the target population.

Power distribution and stakeholders' interests and position regarding the policy options should be analysed. If a certain option does not receive full (enough) buy-in from most stakeholders, it will be difficult for decision-makers to adopt the policy. Interviews with stakeholders, for example, may reveal whether or not a policy option is perceived as acceptable, whether it fits within dominant values and the current national mood, and if it is likely to encounter political support or opposition.

Legal analysis. The laws and rules in place can also facilitate or impede the implementation of a policy. The legislative process may be guided by the political interests of the various stakeholders involved [29]. Options that require revisiting laws and rules and, by doing so, touch on the interests of stakeholders with significant influence on the decision-making process, are likely to be difficult to implement. The decision-maker may have to choose between options with a strong political impact and options with a more scientific rationale. In such cases, it is the decision-maker's experience, political clout and network that will guide the decision.

Stage 4: Priority-setting

Feasibility analysis gives policy-makers the information they need to prioritize the implementation of multiple policy options. Explicit priority-setting criteria and clear, systematic priority-setting processes can therefore be valuable. The criteria that decision-makers consider important based on their specific context should be explicitly identified. Multiple criteria should be considered during policy option priority-setting, and the rationale behind the selected criteria should also be explained to stakeholders [30, 31].



In the interest of achieving the SDGs, a number of explicitly equity-related criteria should be used [32]. The universal health coverage strategy focuses on equity-related criteria, especially improving the distribution and accessibility of health workers as a major priority. Other criteria, such as efficiency, ease of implementation and political acceptability [especially for policy options related to payroll and incentives], are usually considered when prioritizing health workforce policy options. The quality of the evidence is not included among the criteria for priority-setting, because it would have already been taken into account in the translation of HLMA results into policy options.

Criteria identification and the entire priority-setting process can be done through a policy dialogue with key stakeholders. However, criteria do not make decisions – people do. And a systematic and explicit process can help make decisions in a defensible way. The following are four possible desirable features of a priority-setting process.

- It is informed by a pre-circulated summary of the feasibility analysis and by a discussion about the application of explicit criteria to issues under consideration for prioritization.
- It ensures fair representation of those involved in, or affected by, future decisions about the issues under consideration.
- It is led by a champion well recognized in the country, who uses well constructed questions to elicit views about the priority that should be accorded to policy options and related interventions, as well as the rationale for their prioritization.
- An experienced team of policy-makers and researchers is engaged to turn high-priority policy options into policy or a strategic plan [29].

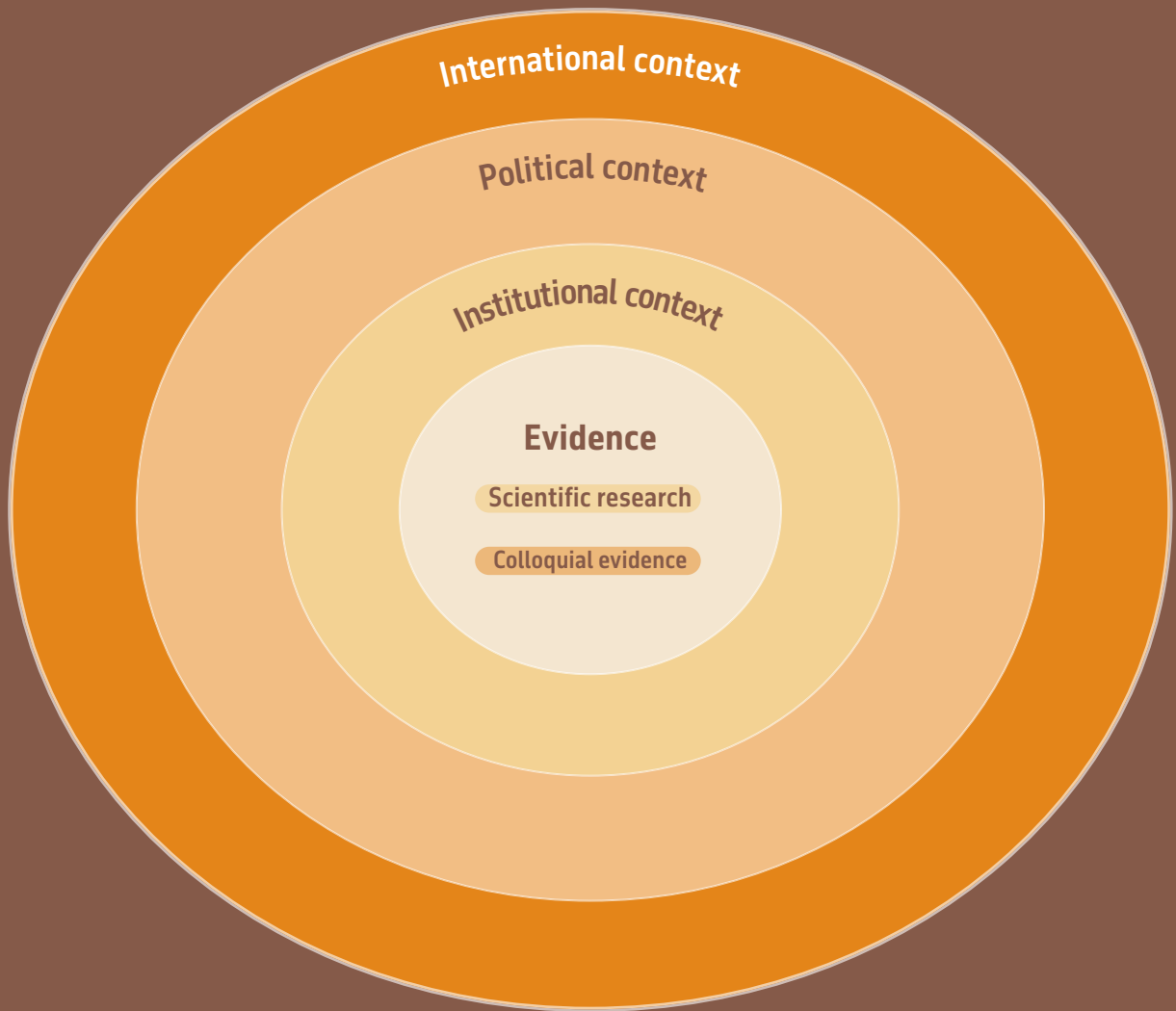
Stage 5: Policy development

The experienced staff of the ministry of health will use the policy options prioritized with the stakeholders to define the vision, strategies and interventions of the health workforce policy to be implemented during a given period of time. A costing of the interventions will be prepared. It is essential that a clear and timely feedback loop be built into the process to allow for adjustments to selected policies where necessary. The evidence-based policy options need be incorporated into current human resources for health strategy development cycles and wider health sector planning cycles.

The rationality of this process presented in five stages could be reinforced by understanding the factors that could influence HLMA-informed decision-making throughout the decision-making process. **Figure 12.2** presents factors that can strengthen (or not) the rationality of the health labour market decision-making process.



Figure 12.2 Factors influencing the HLMA-informed decision-making process



12.4.2 Factors that influence evidence-informed decision-making

The decision-making process not only takes into consideration HLMA (research evidence), but also can integrate other factors and types of information. These include the following.

- **Colloquial evidence.** Policy-makers use lessons learned intuitively from past experience.
- **Institutional context.** Policy-makers' choices are limited, as they have to operate under commitments made by their government and existing legislation, both of which place constraints on the policy-making process. There are multiple levels of decision-making in a country (policy-makers have to bargain and negotiate with numerous stakeholders, including local government, unions, professional associations, facility managers) before making decisions.
- **Political context.** Policy learning takes place through the lens of deeply held political beliefs, which effectively limit the consideration of new policies. Policy-makers usually attempt to build on past policies, for example, in the allocation of financial incentives to different health workers, because considerable effort has been invested to find agreement among a wide range of interests of various stakeholders, such as unions, in the context of financial constraints [33]. Major changes are less frequent and tend to follow "shocks" to subsystems. For example, the COVID-19 pandemic has revealed weaknesses of health systems and has changed momentarily the distribution of power between hospital managers, who tend to have an administrative rationale, and health professionals, who see their role as saving lives no matter the cost.
- **International context.** International organizations provide recommendations regarding investments to be made in the health workforce so as to strengthen the overall health system. For example, the recommendations of the United Nations High-Level Commission on Health Employment and Economic Growth [34] have been accepted by countries as different as France, Italy, Kenya, South Africa, and countries of the West African Economic and Monetary Union. These countries are now increasing and accelerating recruitment of health workers and improving work conditions. However, even during the COVID-19 pandemic policy-makers tend to avoid radical decisions, such as substantially increasing salaries, as they expect other social sectors to request similar increases, at a time when policy-makers are facing economic crisis due to the lockdown during the pandemic.

In conclusion, evidence-informed decision-making following an HLMA will be affected by whether the report has been validated by a national scientific committee, and by the experience and local information available to decision-makers (See Appendix 12.4 for an example of a health workforce study being used for changing retention strategies in Burkina Faso).

International recommendations and guidelines that convey the same messages as the HLMA may also influence policy-makers' decisions. However, national institutional rules and the



distribution of power and interests among decision-makers and stakeholders can limit the adoption of these recommendations. The relative importance of the different factors that influence policy decisions presumably varies in function of the context.

12.5 Conclusion

This module has explained how scientific research can be translated into evidence for policy-making purposes. Scientific evidence is needed to justify policy interventions in accordance with the health system's objectives. HLMA is a type of scientific research that uses systematic, replicable and verifiable methods of collecting information in order to study the imbalance of health workforce supply and demand in a country. HLMA findings can be considered scientific evidence if they have gone through a scientific validation process such as a peer review. When an HLMA has been commissioned by the government (ministry of health, ministry of labour or a high-level civil servant), a national scientific committee may validate the study results.

This module has demonstrated that translating labour market analysis results into policy options contributes to strengthening evidence-informed policy-making. Labour market studies, when conducted in consultation with relevant stakeholders, will increase policy-makers' buy-in of the results. An appropriate timeline for producing analysis of an HLMA will improve uptake of the findings, especially if the report is published during the health workforce policy-making process.

The module has also indicated that one of the barriers to using HLMA findings is the complexity of the research itself. This may apply to education market analysis and to an HLMA that employ complex statistical methods unfamiliar to managers and policy-makers. Researchers must clarify research or policy questions with policy-makers and stakeholders. When an HLMA has been mandated by policy-makers themselves, the policy questions that guide the study must provide them with the information they need for policy-making. It is important to have a communication strategy for disseminating the findings so that the information reaches various stakeholders, who will later have a positive influence on policy-making. Clarifying research questions is also useful for communicating the results that policy-makers expect.

Health workforce policy-making is also a political process, influenced by many different actors, factors, types of information and priorities. Factors that influence policy-makers' decisions include politics, ideology, values, power dynamics, available resources, interests, habits and traditions. That is why a stakeholder analysis is important to better understand the values and the interests of decision-makers and assess the political and social feasibility of the recommendations.



Ultimately, even if we recognize the importance of an informed decision-making process, policy-makers and other stakeholders, in general, have limited resources for developing – or supporting the development of – evidence-informed policies and programmes. Such resource constraints include staff time and capacity limitations. Collaboration between policy-makers and a national research institute or observatory can clearly improve the translation of evidence into policy.





Appendix 12.1 Policy brief guidance and template

Source: Adapted from New Zealand University's policy brief guidance and template for postgraduate field research.

Table 12.2 Policy brief guidance

<p>Purpose of the policy brief</p>	<p>Policy briefs are designed to support informed evidence-based policy-making or decision-making within relevant agencies or organizations.</p> <p>A policy brief explains an issue, its context, stakeholders, scope and impact; it explores known causes, links or relationships involved in the issue; and it identifies the implications of these findings for the key actors or the target audience. While findings explored in the policy brief will be built upon strong scholarly roots, a policy brief is targeted for a professional rather than an academic audience, who have limited time to consider background material before having to make practical decisions.</p> <p>Understanding the limitations of the research, the methods used and the findings identified, as well as the strengths of the research, will be important for extracting accurate lessons and maximizing the potential contribution of the research to good practice development.</p>
<p>How to write a high-quality policy brief</p>	<p>A high-quality policy brief will clearly outline the research findings and will identify any implications of these findings for policy and practice. It will help understand the limitations of research findings, be grounded in context, and be mindful of overgeneralizing, simplifying or falsely attributing cause.</p> <p>High-quality policy briefs are succinct, free of jargon and written in plain language, enabling the reader to quickly identify key lessons and understand how and where these might be applied in practice. Accurately describing the context and stakeholder viewpoints helps the reader to determine the extent to which lessons can be extrapolated and applied to other cases.</p> <p>In any policy brief, there is a trade-off between providing depth of context while also delivering something succinct, targeted and digestible. Learning to balance this trade-off is one of the key skills of writing for policy.</p> <p>For examples, the OECD and United Nations websites provide high-quality policy briefs on development-related issues.</p>
<p>Check list for your policy brief</p>	<p>Ensure that the brief is:</p> <ul style="list-style-type: none"> • focused • grounded in context • outlining the key stakeholders involved and their viewpoints • identifying the implications of the research findings for the target audience • outlining what actions could be taken to address the issues, and the potential implications of these actions or inactions • explicit about the limitations of the findings and lessons • professional, rather than academic • evidence-based • limited (to a specific issue) • succinct • understandable and accessible • practical and feasible • a brief action-oriented tool • providing recommendations that are realistic.

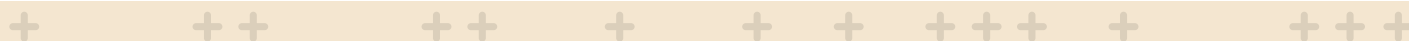
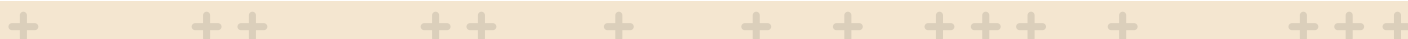


Table 12.3 Policy brief template

The policy brief must not exceed four pages. The text in the right-hand column provides prompts as to what could be included in this section. Please delete when complete.

Title of research	Enter title here
Location of research	Enter location here
Define the context and the issue	Stakeholders and actors involved Scale of the problem (numbers of people, costs, etc.) Why is the issue important – what impact does it have and how does it relate to development outcomes? Background research
Findings	What has been uncovered about the issue? Links, dynamics, causes or relationships between different components of the issue Viewpoints of the stakeholders involved Why and how are current approaches succeeding or failing? Impacts of these dynamics on the stakeholders and broader development outcomes
Implications	What do these findings mean for development actors? What actions and appropriate roles could or should the different actors take to address the issue (such as the ministry of foreign affairs, partner governments, national development organizations, international institutions)? What might be the outcomes of recommended courses of action or inaction?
Limitations and further research	What limitations do the research findings and lessons have? How do these limitations impact the implications or recommendations provided above? What knowledge gaps still remain? Why is it important that further research be conducted to investigate these knowledge gaps?





Appendix 12.2 Studies summary for policy-makers

How to increase the retention of health workers in the remote areas of Burkina Faso?

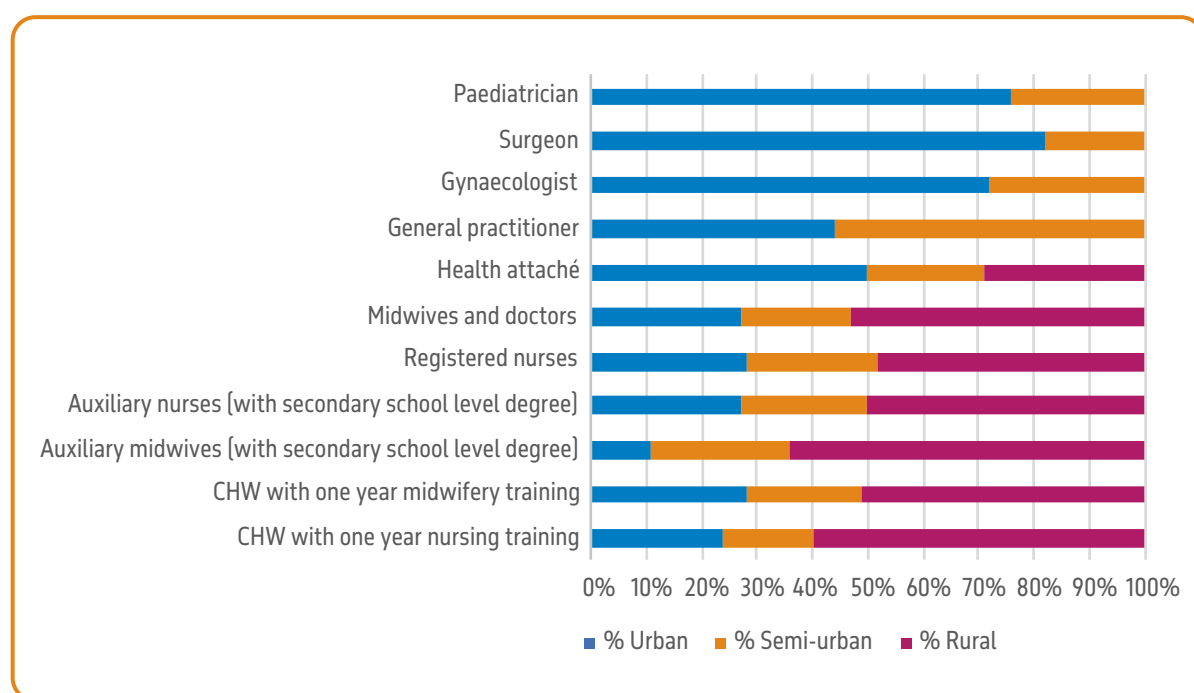
- Remote areas do not have enough qualified human resources for health to allow populations to access quality health services in the implementation of universal health coverage strategies.
- There is poor motivation of health care workers in the remote areas.
- Socioeconomic and managerial incentive measures are necessary to improve this situation.

Despite a significant recruitment effort over the past 10 years (on average 1000 new agents per year), there is a significant disparity in the distribution of key medical and paramedical jobs:

- **40%** of general practitioners in the Centre Region alone for 14% of the total population;
- only **12%** of specialist doctors work in the nine regional hospital centres;
- **half of the midwifery nurses** work in rural areas, where 80% of the population resides.

In addition, **the workforce is young** – more than half of the health workers are aged **under 40 years**, and their deployment where the needs of the population are highest must be a priority.

Figure 12.3 Distribution of health workers by category and urban/rural location in Burkina Faso



CHW – Community health workers



- The research studies found that lack of motivation of health workers and their insufficient retention in remote and rural areas are closely linked.

Several major strategies have been deployed by the government to encourage employment in rural areas as part of the implementation of the 2011–2020 National Strategic Plan, without success, including the following:

- the regionalization of recruitment positions for paramedics;
- the organization of staff mobility on the basis of a ministerial assignment committee;
- the existence of an indemnity scheme using additional remuneration for the retention of health workers in rural areas;
- regional establishment of health training institutes, both public and private.

However, these measures have not proved effective in improving the retention of health workers in rural areas.

The studies carried out and those consulted demonstrate that the following factors discourage retention of health personnel in rural areas:

- lack of socioeducational infrastructure, housing, telecommunications and accessibility in rural areas;
- insufficient equipment or technical platforms in health facilities;
- lack of recognition of the work of health workers, and the inadequacy of management systems, which are perceived as directive and inequitable;
- absence of health insurance;
- a workload that is perceived as excessive by health workers, due to the lack of qualified human resources for health (nurses, midwives) in rural health centres.

In addition, decisions taken by the government will in the short term increase the need for qualified health personnel in remote areas, including free care for pregnant women and children aged 0–5 years, recruitment of nurses and midwives with a bachelor’s degree, revision of staffing norms, and recruitment of 16 000 community health workers.

How to change this situation?

Measures aimed at motivating and securing health workers in rural areas were proposed following an HLMA and other studies of the health workforce carried out by various research institutes in Burkina Faso, and consideration of systematic reviews on health workforce retention:

- revaluation of wages and specific allowances (such as housing, schooling and travel) related to employment in rural areas;



- upgrading of technical platforms and health infrastructure (electricity, water, internet connection);
- the possibility of authorized dual practice (public and private), in particular for doctors and medical assistants;
- improving health insurance for health workers and their families, and other measures to facilitate family reunification;
- easier access to continuous training and career development (for example, specialization or reclassification possibilities after three years of practice);
- assisted acquisition of motorcycle or car to facilitate access to the population living far from the health centre.

Feasible interventions

The following interventions have been considered feasible by the social, political and economic feasibility analysis:

- establishment of effective and continuous high-level dialogue among decision-makers, policy-makers and other relevant stakeholders (including authorities, professional health councils, development partners, ministries of civil service and finance);
- mobilization of domestic and international financial resources to improve the work conditions of the health workforce;
- revision of the regulatory framework in order to boost the career development of health workers;
- acceleration of the decentralization process to enhance the leadership role of local government, which is managing the health workforce;
- expanding the budgetary space to increase the health budget, especially to increase availability of infrastructure, equipment, human resources and medicines.

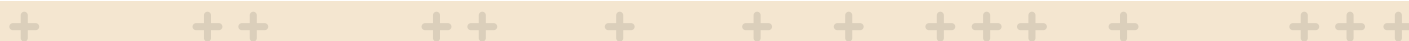
Incentive packages from the health workforce preferences analysis

Medical assistant: proportion of staff who would agree to serve in rural areas (93%)

- Systematic granting of a fellowship after three years of service
- Retention indemnities of US\$ 165 per month
- Tuition bonus of US\$ 165 per child per year for at most three children aged 3–20

Nursing and midwife: proportion of agents who would agree to serve in rural areas (88%)

- Retention compensation of US\$ 165
- Up to one month refresher course every two to three years
- Tuition bonus of US\$ 165 per child per year for at most three children aged 3–20



General practitioner: proportion of staff who would agree to serve in rural areas (98%)

- Possibility of obtaining a registration with a specialization scholarship after years of service
- Specific compensation of US\$ 247 per month
- Tuition bonus of US\$ 165 per child per year for at most three children aged 3–20



Appendix 12.3 Example of financial, political and social analysis of policy options

Recommendation: Accelerate the recruitment of medical assistants to improve the quality of maternal, newborn and child health services in Burkina Faso in 2015

Health labour market analysis (HLMA) findings:

- overall shortage of 598 gynaecological assistants in the 13 health regions of Burkina Faso, including 40 in urban areas and 558 in rural areas;
- overall shortage of 578 paediatric assistants in the 13 regions, including 38 in urban areas and 540 in rural areas;
- Ministry of Health currently creates 20 new posts annually for training and deploying medical assistants across the country;
- 70% of newly recruited medical assistants are working in public facilities in urban areas, covering 20% of the population;
- all gynaecologists and paediatricians work in urban areas.

Policy options:

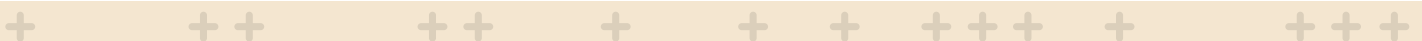
- shorten the medical assistant training programme from three years to two years;
- accelerate local recruitment of 40 medical assistants per year in the public sector through contracting reform;
- recruit medical assistants trained in private institutions and refund their training costs;
- deploy all newly recruited medical assistants to rural areas, with an obligation to stay there for five years.

Literature review findings:

- deploying health workers from urban areas to rural areas (where the living conditions are different) negatively affects their retention;
- accelerating the training programme could negatively impact the quality of the training.

Legal framework:

- only midwives and nurses with a bachelor's degree are eligible to become medical assistants;
- payroll cannot exceed 35% of the total public budget;
- local government is not authorized to recruit health workers for the region, despite nominal decentralization.



Financial information to consider:

- cost of replacing health workers when they leave for training;
- training and intake costs;
- payroll increase.

Guiding questions for policy dialogue and selection of policy options:

- Do you think that increasing the availability of medical assistants could significantly increase the supply of quality maternal and child health services? In the light of the HLMA results, do you consider the recommendations relevant? Please explain your answer.
- What do you think of the health workforce challenges identified? Do you agree that the country needs about 1100 medical assistants in rural areas? If you disagree, why?
- What do you think of the legal framework and financial information provided? Do they provide the information you need to select policy options? If not, what is missing?
- What do you think of the policy options and the literature review? Do you support any of them? If yes, what is your choice? Why did you choose that option?

Questions for policy-makers on their perceptions of political and social feasibility:

- Who are the stakeholders of these policy options? Who do you think might oppose or support the government's choice? Why do you think they will oppose or support it?
- What do you think of the feasibility of the policy options, given the legal and regulatory context? In your opinion, is the policy option that you have selected feasible in the current legal and regulatory context? Explain your answer.
- Do you have a better solution to the problem? If so, what would be the advantages of your solution compared to the policy options provided?
- If the government eventually adopts the policy options provided, would you support it, oppose it or be neutral? Why? If you oppose the government's choice, what would make you change your position?
- What influence could you have in adopting the policy option? What role or involvement could you have in implementing it?

Social and political analysis:

- Who are the key stakeholders concerned by the policy options?
- What are their interests and values regarding each option?
- What power do they have to influence the selection of a given option?
- What is the stakeholders' level of political agreement with the policy statement?
- Under what conditions would they endorse the policy options?
- Is there any risk of opposition?

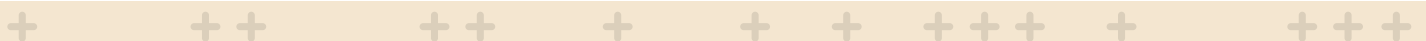


Questions for policy-makers on their perceptions of financial and economic feasibility:

- What activities must be carried out to implement a given policy option?
- Do you think the government will have the necessary resources?
- How might the government mobilize funding for implementation?
- Do you think the government could mobilize the necessary resources in time?

Financial information to consider:

- How much does it cost to train a medical assistant?
- What, on average, will students have to invest in their own training?
- What are the costs of organizing grant competitions?
- What is the current salary for a medical assistant?
- What will the total increase in payroll costs be?
- What financial incentives will be given to medical assistants?
- What will be the cost of financial incentives per medical assistant?



Appendix 12.4 Improving health worker retention in remote areas of Burkina Faso: case study

Burkina Faso increased its health workforce between 2006 and 2010, but not enough to meet the population's growing needs. The country was suffering from a severe lack of qualified health workers at all levels, including support staff. There were only 0.45 physicians, 3.57 nurses and 239 midwives per 10 000 people in 2010.¹⁵

Fourteen categories of health workers provide maternal and child health services in Burkina Faso's public sector, representing 82% of the total health workforce. In 2015, there were 20 518 reproductive, maternal, newborn and child health workers in the public sector, but it was calculated that the country only needed 15 713. Despite this overall surplus, the country faced a shortage of the most qualified reproductive, maternal, newborn and child health workers, especially general practitioners (533), gynaecologists (82) and paediatricians (129), as well as a shortage of secondary education-level practitioners: midwives (1486), nurses (1052) and certificate midwives (2620) at the community level. The shortage of certificate midwives, nurses and general practitioners was more acute in rural areas than in urban areas.

If nothing changes in the way reproductive, maternal, newborn and child health workers are trained, recruited and deployed, demand for health professionals in 2020 will increase to 17 052 (still well below the 25 977 such workers needed) if the government covers at least 80% of the population's reproductive, maternal, newborn and child health needs. However, the shortage of the most qualified health workers was projected to remain high, with a gap of 419 general practitioners, 49 gynaecologists, 135 paediatricians, 465 midwives, 159 nurses and 2120 certificate midwives.

In 2015, the Nouna Health Research Centre conducted a workforce strategy mapping exercise and found that from 1993 to 2013, the government had focused on training community-based practitioners (auxiliary midwives and nurses, midwives, nurses, and general practitioners). Students were recruited out of high school with a grant to study in a priority health field (nursing, midwifery or general practice). Almost 100% of health professionals trained under a government grant ended up working for the public sector, mostly in rural areas. During the same period, the government also recruited health professionals who paid for their own studies. However, these recruitment strategies were not fully successful. The number of health workers in urban areas was still increasing each year, while the number of health workers departing from rural areas was also increasing. In 2014, 7.5% of health workers in the public sector had requested five years' long-term leave for various reasons (such as training, illness or family reasons).

¹⁵ Statistical Yearbook, Burkina Faso Ministry of Health, 2010.



The government implemented several strategies after 2012 to encourage medical practice in rural areas through its National Health Development Plan 2011–2020. Measures included:

- regionalizing recruitment of midwives, nurses and health technicians;
- organizing national health worker mobility based on need and recruiting civil servants accordingly;
- creating a compensation scheme to encourage health workers to stay in rural areas (monthly average of US\$ 25 in additional pay);
- liberalizing and regionalizing public and private sector health training schools.

However, these measures did not significantly improve the retention of health workers in remote areas.

Deployment, motivation and job preference studies were conducted in 2014 and 2015 with financial support from the French Muskoka Fund to build evidence for the development of effective strategies. A policy brief was prepared for policy dialogue with decision-makers in early 2016, and the dialogue resulted in priority being given to the following options:

- provide health workers in rural areas with support for housing and for their children's schooling;
- ensure that health facilities providing surgical services are properly equipped in remote areas;
- increase security at health facilities.

And for health workers in remote areas:

- increase living allowances by 50%;
- facilitate the acquisition of motor vehicles;
- provide career support for staff who have spent three years in rural areas (for example, access to specialized training, possibilities for new assignments, increasing their rank as civil servants).

Implementation of these policy options began in late 2016.

- In 2016–17, the government allocated US\$ 17 138 253 to build and renovate housing for health workers and health facilities in rural areas.
- A new hospital civil servant status was developed, which included better health sector employee benefits.
- In 2017, 65 specialists (gynaecologists, paediatricians and surgeons) and 800 midwives and nurses were recruited and deployed to regional hospitals and medical centres in regions with a severe shortage of health workers (the east, northern centre and the Sahel).
- Security in health facilities was improved by building fences and increasing the number of guards in regional health facilities.

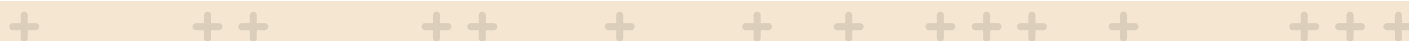


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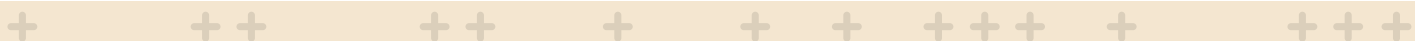
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Conclusion





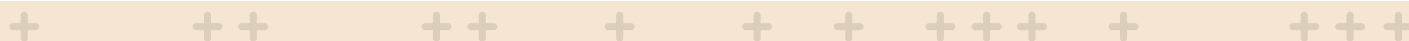
This guidebook is an instrument designed in support of the implementation of the WHO Global Strategy on Human Resources for Health: Workforce 2030 (2016) and of the recommendations and action plan of the High-Level Commission on Health Employment and Economic Growth (2016). It will help policy analysts and researchers to describe and explain the dynamics of the health labour market in their country and thereby provide evidence-based information in response to key human resources for health challenges.

The guidebook consists of 12 modules corresponding to the main elements of the WHO health labour market framework. Taken together, the modules cover the process of conducting analyses of the health worker education market, the supply of and demand for health workers in the public and private sectors, the political economy and macroeconomic factors shaping the health employment sector, gender issues, data sources and collection tools. It also offers recommendations on how to communicate the results of the analysis in a way that is accessible to policy- and decision-makers and contributes to policy development and implementation.

While the guidebook provides general standardized analytical approaches, it is important that its users prioritize issues that the HLMA reflects and take account of their country's specific context.

The guidebook has striven to be "as short and straightforward as possible but also as long and detailed as necessary". It provides necessary key theoretical elements, while focusing more on presenting and discussing the practical steps for undertaking a health labour market analysis. In its present version, the guidebook covers the fundamentals of such an analysis; it will evolve, and some topics that are not discussed in detail, such as international migration of health workers or productivity, will be developed in future editions.

It is important to remember that the guidebook is part of an HLMA toolkit that includes additional training material, a shorter version of the guidebook aimed at those interested in undertaking a rapid HLMA, and a policy brief to inform policy- and decision-makers on how an HLMA can respond to their needs in addressing human resources for health challenges. There will also be a mix of e-learning and face-to-face training activities to help countries develop a critical mass of competent analysts. As a living product, the HLMA toolkit will add modules and learning material in response to the demand from users.





Glossary



The terms in this glossary are defined as they apply to the health labour market. Sources of definitions are the modules of the guidebook when no external source is indicated.

Absenteeism	Operational definitions may vary from country to country, but absenteeism generally refers to non-attendance when scheduled to work [1]. The absenteeism rate is usually calculated as the number of days of absence divided by the number of workdays in a given period.
Acceptability	The characteristics and ability of the workforce to treat all patients with dignity, create trust and enable or promote demand for services. This may take different forms, such as ensuring availability of a same-sex health worker or one who understands and speaks the same language as the patient, and whose behaviour is respectful according to age, religion, or social and cultural values [2].
Accessibility	The equitable distribution of health workers in terms of travel time and transport (spatial), opening hours and corresponding workforce attendance (temporal), the infrastructure's attributes, such as disabled-friendly buildings (physical), referral mechanisms (organizational) and the direct and indirect cost of services, both formal and informal (financial) [2].
Accreditation (in professional education)	The process of evaluation of education institutions against predefined standards required for the delivery of education. The outcome of the process is the certification of the suitability of education programmes and of the competence of education institutions in the delivery of education [3].
Attrition	Defined broadly as exits from the workforce, which can be due to emigration, voluntary exits (for example, to other sectors of employment), illness, death or retirement [4].
Availability	The sufficient supply of a stock of health workers with the relevant competencies and a skills mix that corresponds to the health needs of the population [2].
Benefits	Non-wage returns to workers for labour services, including time off with pay for holidays, vacations, and sick leave, retirement benefits, health care, and similar benefits.
Capacity-building, capacity development	Capacity-building commonly refers to a process that supports only the initial stages of building or creating capacities and alludes to an assumption that there are no existing capacities to start from. It is therefore less comprehensive than capacity development. Capacity development commonly refers to the process of creating and building capacities and their [subsequent] use, management and retention [5].
Career management	The process of setting goals, identifying specific skills, capabilities, and interests, and implementing a career plan. Providing career management assistance is one of the strategies employed to retain health professionals [6].
Career structure	Planned set of differentiated steps, posts or jobs through which one can progress professionally within a specific position or across positions along time to ensure the continued effectiveness of an organization [6].
Certification	The recognition that an individual has met certain qualification requirements.
Collective bargaining, collective agreement	Collective bargaining refers to all negotiations that take place between an employer, a group of employers or one or more employers' organizations, and one or more workers' organizations, to define working conditions and terms of employment. A collective agreement is a written agreement concluded between one or more employers or an employers' organization on the one hand, and one or more workers' organizations of any kind on the other, with a view to determining the conditions of individual employment [7].



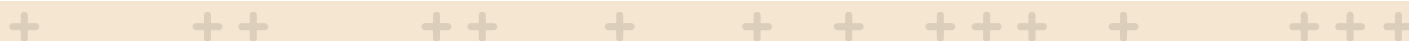
Compensation	The total remuneration, in cash or in kind, payable by an employer to an employee in return for work done by the latter during the accounting period. The compensation of employees has two main components: (a) wages and salaries payable in cash or in kind; and (b) social insurance contributions payable by employers, which include contributions to social security schemes, actual social contributions to other employment-related social insurance schemes, and imputed social contributions to other employment-related social insurance schemes <i>[7]</i> .
Competencies	The abilities of a person to integrate knowledge, skills, and attitudes in their performance of tasks in a given context. Competencies are durable, trainable and, through the expression of behaviours, measurable. ¹⁶
Continuing education or professional development	All educational experiences, activities and resources engaged by a health professional after completion of professional training. The form of continuing professional development may include courses and lectures, training days, peer review, clinical audit, reading journals, attending conferences, or e-learning activity. National systems for continuing professional development may be voluntary or mandatory <i>[8]</i> . ¹⁷
Coping strategies	Approaches employed by health personnel to overcome unsatisfactory remuneration or working conditions in order to fulfil professional and material expectations. Examples of coping strategies are (a) undertaking extra duties to supplement income; (b) migrating to private practice or out of the health sector; and (c) being in a payroll without providing services <i>[9]</i> .
Decent work	Decent work involves opportunities for work that is productive and delivers a fair income, security in the workplace and social protection for families, better prospects for personal development and social integration, freedom for people to express their concerns, organize and participate in the decisions that affect their lives and equality of opportunity and treatment for all women and men <i>[10]</i> .
Demand (for health services)	The health care expectations expressed by individuals or communities; or, the willingness and ability to seek, use, and, in some settings, pay for services. It may be subdivided into expressed demand [equated with use] and potential demand. It may also be subdivided into rational demand [demand that corresponds to need] and irrational demand [demand that does not correspond to need] <i>[11]</i> .
Demand (for health workers)	The demand for health workers corresponds to the number of health workers that a health system can support in terms of positions or economic demand for services. In other words, it reflects the capacity and willingness to pay of the purchasers of health care (for example, government, private sector firms), which in turn drives the demand for employing health workers in public or private hospitals, public health centres, and other parts of the health system, including self-employed health workers. The demand for health workers is therefore a derived demand for health services <i>[12]</i> .
Deployment	The process of allocating personnel among types and levels of services and among regions and subregions of a country <i>[13]</i> .
Discrete choice experiment	A quantitative research method that measures the strength of preferences and trade-offs of health workers with regard to different job characteristics that can influence their career decisions, for example taking up rural postings <i>[14]</i> .
Discrimination	Discrimination is prejudicial treatment in the workplace, which may affect hiring, firing, promotions, salary, job assignments, training, benefits or lay-offs, based on a person's age, gender, sexual orientation, race, religion, national origins or disabilities.

¹⁶ Global competency framework for universal health coverage. Geneva: World Health Organization (forthcoming)

¹⁷ National Health Workforce Accounts: a handbook. Definitions from this source are often from another source; the handbook is used for convenience. Readers will find more information on the origin of the definition by consulting the handbook.



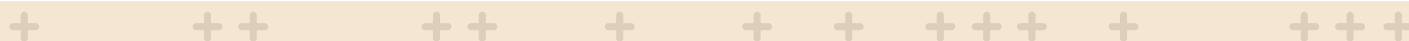
Distribution	The result of deployment. For example, balanced distribution refers to the appropriate allocation of health personnel, geographically and among levels of care and types of services, to ensure equitable provision of quality health services to all.
Division of labour	The distribution of tasks between the various health occupations and within occupations (for example among specialties).
Drop-out rate	Students from a cohort leaving health workforce education and training without completion [8].
Dual practice	There are several forms of dual practice. Health professionals can work in a public service provision role and another role: (a) outside: in a completely separate private environment; (b) beside: in a private ward or clinic physically associated with a public facility but run as a separate business; (c) within: where private services are offered inside a public facility but outside public service operating hours or space; or (d) integrated: where additional fees are charged for services offered alongside standard public ones, often informally, on the understanding of a faster – or higher-quality – service. Academics and policy-makers typically restrict the term dual practice to category (a), but it is clear that categories (b), (c) and (d) present alternative scenarios for health professionals to combine public and private practice, and supplement public sector salaries; policy-making in this domain should navigate the trade-offs between the objective of retaining personnel while ensuring their commitment to public sector objectives [15].
Earnings	The gross remuneration in cash and in kind paid to employees for time worked or work done together with remuneration for time not worked, such as annual vacation, other type of paid leave or holidays. Earnings include direct wages and salaries, remuneration for time not worked (excluding severance and termination pay), bonuses and gratuities and housing and family allowances paid by the employer directly to the employee. Earnings exclude employers' contributions in respect of their employees paid to social security and pension schemes and the benefits received by employees under these schemes. Earnings also exclude severance and termination pay [7].
Education (of health workers)	The process of developing knowledge, skills, attitudes and competencies related to the delivery of health services. Specialization is the process of developing advanced knowledge, skills, attitudes and competencies related to the delivery of specific health services.
Educational 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 non-profit [8].
Efficiency	Allocative efficiency is (a) the extent of optimality in distribution of resources among a number of competing uses; or (b) the capacity of a system to distribute resources among competing activities, in a way that no alternative reallocation offers improvements in returns. Related to the comparative efficacy of interventions and to priority setting, it is also (c) an aggregate concept, referring to competing options, inside or outside the health sector. Allocative efficiency assumes that competing options work at the same level of technical efficiency. Technical efficiency or productivity refers to outputs extracted from given inputs, such as patients seen per doctor, or number of procedures per provider [11].
Elasticity of labour supply	This measures the responsiveness of labour supplied, typically in terms of hours worked or participation rate, to changes in the wage rate. Labour supply elasticity gives the percentage change in hours of work or participation associated with a 1% change in the wage rate. A positive elasticity indicates that hours worked or participation increase as wages increase, while a negative sign indicates that hours worked or participation decline as wages increase. The absolute size of elasticity reflects how responsive hours worked or participation are to changes in the wage rate.



Employment status: full-time, part-time, temporary, permanent	Full-time (whole-time) is employment for or working for the amount of time considered customary or standard. Part-time is employment for or working for less than the amount of time considered customary or standard. Permanent is employment contracted for an indeterminate period. Fixed-term is employment contracted for a fixed period of time. Temporary refers to short-term contracts or "casual" work, either for a definite period or for a specific activity. Self-employment is when remuneration is directly dependent upon the profits derived from the goods and services produced by the individual [8].
Enrolment	Number of new entrants in the first year of an education programme [8].
Equilibrium rate of pay (or equilibrium wage rate)	The wage at which the supply of health workers equals the demand for health workers.
Equity	Human resources for health equity occurs when all members of a population have access to health workers, irrespective of place of residence, capacity to pay and without any form of discrimination (by social status, ethnic origin, religion, sexual orientation or other characteristic). Equity also refers to access to health workers modulated as a function of the importance of the need (for example, urgency of the need or the gravity of the health problem) and to the provision of the same quality of service to all users for the same type of need. This is different from equality – a situation in which all persons have exactly the same access to health workers.
Feminization (of an occupation)	Process by which the number of female workers proportionately increases in a specific occupation.
Fiscal space	The capacity of government to provide additional budgetary resources for a desired purpose without any prejudice to the sustainability of its financial position [11].
Flexibility	The ease of adjustment of supply of health workers to demand – for example, adjustments to meet workload changes (such as increase or decrease of working hours, use of temporary staff and fixed-term contract staff).
Full-time equivalent	The total hours worked divided by the average annual hours worked in a full-time job [8].
Gender	Socially constructed identities, attributes and roles for women and men and society's social and cultural meaning resulting in hierarchical relationships between women and men and in the distribution of power and rights.
Ghost worker	A real person who knowingly or not is placed on the payroll, or a fictitious person intentionally placed on the payroll by a dishonest employee who pockets the wages paid to the ghost worker [16].
Governance	Governance in the health sector refers to a wide range of steering and rule-making related functions carried out by governments/decision-makers as they seek to achieve national health policy objectives that are conducive to universal health coverage. Governance is a political process that involves balancing competing influences and demands [17].
Health labour market	The structure that allows services of health workers to be sought (demanded) and offered (supplied). The health labour market can be characterized according to geographical area (local, national or international); occupation (by occupation title or category, specialized or unspecialized); and sector (private or public, formal or informal). The dynamic between the number and the kind of jobs offered on the market and the number of health workers is central in determining the configuration of the health labour market.
Health workforce, human resources for health, health workers	All persons engaged in actions whose primary intent is to enhance health. Three categories of workers relevant for health workforce analysis can be distinguished: (a) those with health vocational education and training working in the health services industry; (b) those with training in a non-health field (or with no formal training) working in the health services industry; and (c) those with health training who are either working in a non-health-care-related industry or who are currently unemployed or not active in the labour market [8].



Health workforce planning	The process of estimating potential requirements for human resources for health and of designing ways of fulfilling those requirements, including 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 [8].
Hours worked	Total weekly hours worked in health jobs. For example, the Australian Bureau of Statistics defines the cut-off for full-time and part-time work as follows: full-time work, 35 hours or more per week; part-time work, less than 35 hours per week [18].
Human capital	The stock of accumulated skills, experiences and personnel that make workers more productive.
Human resources development	Systematic effort, within the limits of what a country is prepared to spend, to maximize the effective utilization of the workforce in the health sector [19].
Human resources for health information system	An information system that provides, analyses, evaluates and distributes information needed to support decision-making and health personnel management and practices.
Human resources management	The process of creating an adequate organizational environment and management of health workers, including hiring, defining incentive systems, performance monitoring, supervision, and career development.
Incentive system	Sets of rewards and sanctions to improve staff performance and motivation by providing financial and non-financial benefits, such as flexible working schedule, training, and education and career development opportunities.
In-service training	Maintenance and adaptation of the competencies of existing personnel within the context of their current position; training received while one is employed in the health sector [8].
International Standard Classification of Occupations (ISCO)	An international classification for organizing jobs into a clearly defined set of groups according to the tasks and duties undertaken in the job. It is maintained by the International Labour Organization.
Job vacancy	A funded 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. The vacancy rate is 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 [8].
Labour force survey	A household-based sample survey focused on the labour force status of the working age population and related statistics. Such surveys often allow disaggregation of the labour force by personal characteristics such as sex, age, educational attainment, and, in some cases, by migrant status and ethnicity, as well as providing information about the jobs held by employed persons (such as occupation and type of contract).
Labour legislation	Laws and regulations that govern the functioning of the labour market.
Labour relations	Relations between employers and employees in relation to collective bargaining, for example negotiation over the terms and conditions of an agreement or contract and maintenance of contract.
Licensing, licensure	Licensure is a process by which a governmental authority grants permission to an individual practitioner or health care organization to operate or to engage in an occupation or profession. Licensure regulations are generally established to ensure that an organization or individual meets minimum standards to protect public health and safety. Licensure to individuals is usually granted after some form of examination or proof of education and may be renewed periodically through payment of a fee and/or proof of continuing education or professional competence [11].



Lifelong learning	All general education, vocational education and training, non-formal education and informal learning undertaken throughout life, at all levels and in all settings, resulting in an improvement in knowledge, skills and competencies <i>[8]</i> .
Market failure	The failure of the market to achieve an efficient allocation of resources or to reach social goals, providing the economic case for regulation and intervention of the State <i>[11]</i> .
Migration	Process of movement of people from one country, region or place to settle in another. Moving out is emigration; moving in is immigration. The expressions of outflow and inflow are also used.
Mismatch	In the HLMA guidebook, a mismatch is defined as a discrepancy or a lack of correspondence between demand and supply that can result in (a) health worker shortage or surplus; (b) skills mismatch related to undereducation or overeducation; or (c) labour discrimination or bias exercised by the employer.
Mobility flow	The movement of personnel between positions, organizations and regions, or from the public to the private sector within a country, or out of the health sector.
Monopsony	A situation when there is just one buyer (employer) of labour in a market.
Motivation	An individual's degree of willingness to sustain efforts towards achieving certain goals.
Multiple employment	Undertaking two or more paid jobs, whether public or private or both. It can take the form of doing the same work in different settings (for example, work in two or three hospitals) or of combining different types of work (for example, clinical work plus teaching or research).
National Health Workforce Accounts (NHWA)	A mechanism to collate and use a set of standardized indicators to generate reliable human resources for health information and evidence, with the objective of enabling planning, implementation and monitoring of workforce policies towards universal health coverage, and improving comparability of health workforce data nationally and globally <i>[8]</i> .
Need for health workers	The number of health workers required to attain the objectives of the health system. There are various approaches to calculating this number – for example, it is sometimes estimated based on a threshold of minimum availability of health workers to address priority population health issues, or in relation to the specific service delivery profile and requirements of a health system.
Numerus clausus	Fixed number of admissions in a professional education programme.
Occupation	A set of jobs whose main tasks and duties are characterized by a high degree of similarity <i>[8]</i> .
Out of the labour force	Individuals who are neither employed nor unemployed and who are not looking for a job.
Participation rate	The health labour market participation rate is the number of workers who are currently employed or are unemployed but actively looking for work (the active workforce), divided by the total number of qualified health workers (stock).
Pay progression	Incremental remuneration.
Payment mechanism	Method by which health care service providers are reimbursed, such as salary, fee for service, capitation, case payment, or a combination of those.
Performance-based payment, performance-based funding	Payment or funding conditional upon taking a measurable action or achieving a predetermined performance target <i>[11]</i> .
Policy dialogue	The social debate and interaction between stakeholders that leads to translation of policy into strategies and plans <i>[11]</i> .



Productivity (technical efficiency)	The outputs extracted from given inputs, such as patients seen per doctor or number of procedures per provider.
Professional council	Organization with the legal authority to regulate one or more health occupations with a view to protecting the public. Its mandate can cover the regulation of entry into the occupation (education requirements), the monitoring and promotion of the quality of practice, and administration of discipline.
Professionalization	Process by which members of an occupational group seek social and legal recognition, often including the regulation of certain activities for which the occupational group is specifically trained.
Quality (of health workers)	The competencies, skills, knowledge and behaviour of the health worker as assessed according to professional norms (or other guiding standards) and as perceived by users [2].
Recruitment	Process of searching for personnel to enter a particular job or position.
Registration	Official recording of the names of persons who have certain qualifications to practise a profession or occupation.
Regulation (for health workers)	The definition of rules that will govern the structure and functioning of education institutions and of service provider organizations and the professional activities of individual health workers.
Remuneration	Average gross annual income earned by employees or those self-employed – that is, income per year and per person, before any deductions for social security contributions or income tax (see “earnings”).
Reservation wage	The minimum wage at which individuals are willing to work in the health labour market.
Retention (of health workers)	Maintenance of health personnel in a specific position or organization, the health sector, region, or country.
Return on investment	Expected gains from an investment. For example, the rate of return to education, which is categorized into private (the extent to which investment in education is profitable in financial or other terms to the individual) and social (the extent to which investment in education is profitable in financial or other terms to society).
Scope of practice	The set of tasks that members of a specific occupation are authorized to perform.
Shortage	Strictly speaking, the situation in which the supply of health workers is insufficient to respond to demand. In other words, jobs offered remain unoccupied. When the target is the number of health workers needed to provide the services corresponding to the health needs of the population or to the requirements of a policy choice (such as universal health coverage), there is a deficit or needs-based shortage.
Skills mix	A broad term that refers to the combination or grouping of different categories of staff in the workforce, or the demarcation of their roles and activities. It is also used to describe the mix of posts, grades or occupations in an organization (as in “grade mix”) [8].
Stakeholder	An individual, group or organization that has an interest in the organization and delivery of health care [11].
Stock	The total number of health workers potentially available in a country, including those participating in the health labour market, plus those who are qualified to do so but do not participate for some reason, such as early retirement.
Supply (of health workers)	The number of health workers active in the health labour market, either in employment or not employed but willing to work.
Surplus (of health workers)	The situation in which more health workers are willing to work than there are jobs available.



Task sharing	The rational redistribution and sharing of tasks among health workforce teams. Specific tasks are shared, where appropriate, between highly qualified health workers and health workers with shorter training and fewer qualifications in order to make more efficient use of the available human resources for health [20].
Teamwork	Work done by a group of two or more workers with mutual dependencies, and for which they hold themselves mutually accountable.
Trade unions, unions	Representative bodies that act to protect and defend the legal rights and interests of their members. Unions influence the contents and the pace of implementation of reform agendas, especially in issues involving conditions of pay, terms of employment or job specifications.
Turnover rate	The percentage of employees leaving the organization and replaced by new employees during a certain period.
Underemployment	Underemployed persons are those who, because of reduced or modified demand for labour or insufficient employment creation, are compelled, as an alternative to being without work, to work shorter hours, or to work in lower skilled jobs, thus reducing their income below the level they might normally be able to earn [21].
Unemployment	The condition in which individuals available for work are not employed. This includes all persons of working age who are qualified for a job, are not in employment, have carried out activities to seek employment during a specified recent period, and are currently available to take up employment given a job opportunity [8].
Working conditions	The environment in which an individual works, including terms of employment, benefits, physical and social climate.
Workload	The amount of work assigned to a specific position or to one person. Also, the actual amount of work performed during a certain period; it can be expressed in terms of time (number of hours worked) or of activities (such as number of consultations or of surgeries).
Work organization	Process of defining arrangements of how work is to be performed, for example teamwork, management by programme.



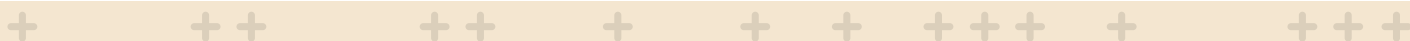


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