Optimizing the management of the health workforce is necessary for the progressive realization of universal health coverage. Here we discuss the six main action fields in health workforce management as identified by the Human Resources for Health Action Framework: leadership; finance; policy; education; partnership; and human resources management systems. We also identify and describe examples of effective practices in the development of the health workforce, highlighting the breadth of issues that policy-makers and planners should consider. Achieving success in these action fields is not possible by pursuing them in isolation. Rather, they are interlinked functions that depend on a strong capacity for effective stewardship of health workforce policy. This stewardship capacity can be best understood as a pyramid of tools and factors that encompass the individual, organizational, institutional and health system levels, with each level depending on capacity at the level below and enabling actions at the level above. We focus on action fields covered by the organizational or system-wide levels that relate to health workforce development. We consider that an analysis of the policy and governance environment and of mechanisms for health workforce policy development and implementation is required, and should guide the identification of the most relevant and appropriate levels and interventions to strengthen the capacity of health workforce stewardship and leadership. Although these action fields are relevant in all countries, there are no best practices that can simply be replicated across countries and each country must design its own responses to the challenges raised by these action fields.

Introduction

There is growing recognition that the progressive realization of universal health coverage (UHC) is dependent on a sufficient, equitably distributed and well performing health workforce. Optimizing the management of the health workforce has the potential to improve health outcomes, enhance global health security and contribute to economic growth through the creation of qualified employment opportunities.
The effective management of the health workforce includes the planning and regulation of the stock of health workers, as well as education, recruitment, employment, performance optimization and retention. Health workforce management is a difficult task for many reasons. For example, there can be skills shortages and funding constraints. Health workers can also form groups (associations, unions and councils) with political and social power; such groups can defend and promote objectives and interests that are not always aligned with national health priorities and objectives. Historically, the health labour market has been highly regulated through barriers at entry and restrictions on tasks that specific health workers can perform; the most highly qualified workers have also secured significant autonomy in performing their work. The health workforce development function is part of, and therefore needs to be integrated with, health system governance and management, health sector policy and legislation, and service delivery strategies and mechanisms.

Here, we discuss the six main action fields in health workforce management identified by the Human Resources for Health Action Framework: leadership; finance, policy; education; partnership; and human resources management systems. We have adopted this framework because it is explicitly focused on actions required by policy-makers and planners (all six action fields) and managers (included in the last three action fields), as opposed to other frameworks that are based on the perspective of the individual health worker or more focused on the labour and finance elements. These six action fields are relevant in countries at all levels of socioeconomic development, including those affected by conflict and chronic complex emergencies. Because of their intrinsic complexity, and the need to adapt interventions to the specific context and vested interests of a country, these action fields require long-term strategic vision and commitment.

We elucidate the logical hierarchy and links between the six different action fields (Fig. 1). We identify and describe illustrative examples of effective practices in health workforce development according to these six action fields, highlighting the breadth of issues that policy-makers and planners should consider.

**Leadership**

The effective planning, development, regulation, oversight and management of the health workforce requires more than having a human resources department in a health ministry performing the bureaucratic work of processing recruitment, transfers and
retirement. Effective leadership means: identifying needs, priorities and objectives; designing and implementing fitting policies; and managing interactions with other government sectors and regulatory agencies that make decisions impacting on the health workforce. The Islamic Republic of Iran, which has a Ministry of Health and Medical Education, is a rare example of a country that has formalized the coordination between the two sectors. Other government ministries will also be influential in contexts where health services are primarily delivered in the public sector; the ministries of finance and public services can impose constraints on remuneration and working conditions.

Finance

Mobilizing commitment and support
A critical part of the management of the health workforce is to mobilize political leadership and financial support (to ensure that policies survive leadership changes in government) and build support from stakeholder organizations. Political leadership is required for a whole-of-government approach instrumental to: (i) advocate the business case for strengthening the health workforce and mobilizing stakeholder support; (ii) marshal financial and policy support from ministries of finance, education, labour, civil service commissions, local government and the private sector; (iii) accelerate the adoption of relevant innovations; (iv) mobilize adequate financial resources to meet needs (primarily from domestic resources but, in the case of aid-dependent countries, also from development partners); and (v) overcome rigidities in public sector regulations.

Targeted funding can support the effective development of human resources for health, but overlapping sources of funds creates the risk of undermining effective coordination. The evidence suggests that sustained leadership in pursuing policy reforms and in coordinating the targeting of funds is more important than the production of planning and strategic documents; for example, over several political cycles the governments in Brazil and Thailand have been relatively successful in maintaining basic policy objectives, such as strengthening primary care, by creating sustained collaboration between ministries, national agencies, and state and local authorities.

Policy

Workforce planning for UHC
The planning of the health workforce should address requirements holistically, rather than by occupational groups, and be informed by population and health system current and expected future needs. Such planning should cover education policies, financing requirements, governance and management, and be a continuous process with regular monitoring and adjustment of priorities. Determining today the number and type of health workers that will be needed in 10–20 years is a complex and often inexact exercise; such a process requires both a valid picture of the current situation and a clear vision of the services that will be needed in the future. A good understanding of the dynamics of the health labour market is also a prerequisite; knowing how the participation rates, mobility patterns, aspirations and behaviour of workers will evolve is therefore critical. Certain countries have used this type of information to forecast requirements for skills and competencies in the health and social care workforce (United Kingdom of Great Britain and Northern Ireland),\textsuperscript{9} improve the distribution of pharmacists (Lebanon)\textsuperscript{10} and assess the planning implications of demographic change in the nursing workforce (Ghana).\textsuperscript{11}

Countries with a small population face additional challenges as they cannot expect to achieve economies of scale and be totally self-sufficient, for instance in the education of highly specialized health workers. Educational functions and facilities can be pooled through intercountry collaboration in the form of bilateral or multilateral agreements. Examples of pooling resources include between-country agreements in Europe on sharing the training and development of specialist staff,\textsuperscript{12} and a medical school in Fiji being accessible on a cooperative basis to nationals from other Pacific island countries as a primary resource for the training of doctors.\textsuperscript{13}

**Effective information systems**

A recurrent recommendation is to build or strengthen human resources databases that provide policy-makers, planners, researchers and other potential users with valid, reliable, up-to-date and easily accessible data on the health workforce. Major international databases from the World Bank, World Health Organization (WHO) and Organisation for Economic Co-operation and Development (OECD) use data provided by their Member States, but data are provided with varying degrees of quality and completeness between countries. In most countries, there are different sources of potentially useful data (e.g. government ministries, professional councils and training institutes); setting a common definition of required data and coordinating data collection is challenging but important.\textsuperscript{14}
With a view to standardizing data collection by countries, the WHO Regional Office for Europe, Eurostat and the OECD have combined forces to develop a joint questionnaire that includes sections on health employment and education, and health workforce migration. In addition, WHO provides guidance on a minimum data set for health workforce registry and on the development of National Health Workforce Accounts to improve data availability. Another example is the successful establishment of human resources observatories for health, as in Sudan. Independent organizations that produce research evidence to inform the health workforce policy process operate in Canada (WHO Collaborating Centre on Health Workforce Planning and Research, based at Dalhousie University in Halifax, Nova Scotia), England (Health Education England) and the United States of America (Healthforce Center at University of California, San Francisco).

Education

**Appropriate candidates for health professional education**

Health workers must have the profile, skills and behaviour that creates trust in the population and promotes demand for quality services. These criteria imply that candidates for training as health professionals must have specific characteristics, such as the ability to communicate, show empathy, be sensitive to cultural differences and work as a team. In most countries the selection of students is by academic grades; although this is a good predictor of future academic performance, it does not reveal anything about future professional performance. The University Clinical Aptitude Test is used in the United Kingdom for the selection of medical and dental applicants to assess mental attitude and behavioural characteristics consistent with the demands of clinical practice. In South Africa, there have been successful examples of more inclusive admission policies coupled with bridging programmes that support students from underprivileged backgrounds.

**Competency-based education**

For a decade, calls have been made to transform education programmes and learning strategies to ensure that future health workers have the required competencies for the changing burden of diseases and technological environment. Desirable competencies must be identified and aligned with population health priorities and any identified skills gaps. In many countries, this means a shift in focus towards education and training that prepares the workforce to deliver effective primary care and meet the increasing
challenge of noncommunicable diseases. There are good examples of education for primary care practice in medicine and nursing in Portugal, South Africa and Thailand.

**Adequate mix of skills**

The training and deployment of a sufficient stock of health workers that comprise an optimal mix of skills may entail scaling-up the capacity and staffing of training institutions, and investing in infrastructure. Although there are generally sufficient applicants for medical studies, applicants for training in other health professions such as nursing are sometimes insufficient. Austria, Belgium, Denmark, Germany and the Netherlands are some of the countries that have launched targeted campaigns to attract students to nursing and to other occupations with unmet needs, for example, in the fields of radiography and medical laboratory technology. An additional challenge is to attract students to less popular (but no less important) medical specialization fields such as family practice, mental health, emergency care or geriatrics. One solution to understaffing in less-popular specialties and geographical areas is to consider alternate providers. In some contexts, community-based and mid-level health workers, adequately supported by the health system, have been effective in expanding coverage and improving health service equity (e.g. in rural areas or for low-income or vulnerable groups).

**Regulating education and practice**

The development and activation of a regulatory framework that upholds accepted standards of education and practice can include the accreditation of training programmes and institutions, the licensing and certification of health facilities and of individual health workers, and laws defining the scope of practice for each level of worker. Such a framework can also cover the regulation of work in the private sector, including dual practice (where professionals employed in the public sector can undertake work in the private sector) and the regulation of private sector education institutions, mechanisms of surveillance of practice by professional councils, and the exercise of discipline in cases of malpractice or unethical behaviour.

In many countries, some of these functions are the responsibility of independent nongovernmental organizations, such as accreditation bodies and professional councils. There is wide variation in educational requirements, regulation and scope of practice between countries and for different professions. These organizations require
continuous funding to function effectively, which explains why they tend to be more developed in high-income countries and in countries with larger professional memberships.\textsuperscript{32} Right-touch regulation in England entails regulating only what is necessary, monitoring results, checking for unintended consequences and ensuring adherence to explicit policy objective.\textsuperscript{33}

**Partnership**

**Effective labour relations**

Literature on the adverse effects of poor labour relations (e.g. between management and unions), evidenced by striking health workers, are more abundant than literature on good practices in labour relations to limit such disruptions. To identify good practices, studying the experience of countries where conflict management is effective in preventing service disruption is needed as well as identifying contributing factors to prevention. Context-specific policy recommendations have been developed to guide the management of labour relations in countries that have recently witnessed large-scale industrial action by health workers (e.g. Kenya), emphasizing the importance of mechanisms of dispute resolution.\textsuperscript{34} Experience from South Africa highlights the need to preserve access by the population to essential services during episodes of industrial action.\textsuperscript{35}

**Human resources management systems**

**Supporting and retaining workers**

Decent work can contribute to making health systems effective and resilient, and to achieving equal access to quality health care.\textsuperscript{36} Decent work may have different meanings depending on the context; a good indicator of its existence is the capacity of provider organizations to recruit the staff they need and to retain them. In the USA, so-called magnet hospitals report higher nurse satisfaction, less staff turnover, higher patient satisfaction and better health outcomes.\textsuperscript{37,38} In Portugal, family health units are self-constituted teams of physicians, nurses and administrative secretaries, which demonstrate better worker and user satisfaction, coverage and health outcomes than traditional health centres that are staffed through public recruitment and where professionals operate in a more rigid administrative environment.\textsuperscript{36} What these examples from the USA and Portugal have in common is that workers have more autonomy, work in teams and feel respected; management is participative; and innovation is valued. Good practices, such as creating a more family-friendly
environment (e.g. offering flexible hours to mothers of young children and providing access to child day-care services) or adapting working conditions for older workers to prevent early retirement, also show positive results in attracting and retaining workers in health facilities. Deliberate efforts to create a positive practice environment, with a focus on involving staff in decision-making and assessing workplace priorities, has translated into the improved motivation and performance of health workers in several low- and middle-income countries, specifically Morocco, Uganda and Zambia.

**Underserved geographical areas**

The attraction of health workers to rural, isolated or otherwise underserved areas, and the retention of these workers once recruited, requires a range of strategies, including: targeted education admission policies to attract candidates from underserved zones; packages of financial, professional (mentorship, networking and continuing education) and quality-of-life incentives; regulatory reforms; and bonding contracts in exchange for educational support costs. Specific policy interventions include: compulsory service in disadvantaged areas after the completion of studies, for example in South Africa; development of a role intended to provide care in rural and/or remote areas, for example in aged care nurse practitioner in Australia and surgical technicians in Zambia; an emphasis on rural experience in medical education provision; and the use of financial incentives to retain staff, for example in Cambodia, China and Viet Nam.

**Managing emigration**

Some high-income countries rely on active international recruitment, which can exacerbate staff shortages in lower-income source countries. Emigration flows can reach high levels from some low- and middle-income countries where working conditions are perceived as poor. These flows can be mitigated by the use of bilateral agreements which define the conditions under which foreign workers, typically physicians and nurses, will be employed in destination countries as well as the benefits both countries would gain from the agreement, as recommended by the WHO Global Code on the International Recruitment of Health Personnel. An example of such an agreement is that between Germany and Viet Nam, signed in 2012, in which gaps are addressed in geriatric care nurses in the destination country (Germany), and training and employment opportunities are provided for health personnel of the source country (Viet Nam). Outflows from higher-income countries can be beneficial during periods of
high unemployment or underemployment, which was the case during times of austerity in Greece, Portugal and Spain.\textsuperscript{47}

Very few studies in the literature assess good practices to prevent the emigration of health workers. The increase in remuneration of physicians in Ghana in 2008 appeared to reduce the rate of emigration by 10\%, principally among physicians younger than 40 years (potential emigrants) but not of older physicians.\textsuperscript{48} Hungary adopted a series of measures such as pay increases and scholarships for specialty training in exchange for 10 years of work in public services, but with only limited success.\textsuperscript{49}

\section*{Discussion}

We have discussed the six different action fields under the purview of health sector policy-makers, planners and managers, focusing on the system-wide or organizational environmental factors that relate to health workforce development. Other factors exist outside the control of policy-makers in the health sector, which in turn have a fundamental role in determining the political, technical and financial feasibility and sustainability of health workforce policies and actions. While recognizing their importance, these factors fall outside the scope of this paper.

Although the evidence base for the six action fields identified by the Human Resources for Health Action Framework is limited, it is still sufficient in each individual action field to warrant a dedicated review. These action fields are not strategies that can be pursued in isolation. Rather, they are interlinked functions that depend on a strong capacity for the effective stewardship of health workforce policy, as illustrated in Fig. 1. This capacity can best be understood as a pyramid of tools and factors, encompassing the individual, organizational, institutional and health system levels, where the success of each level depends on capacity at the level below and enables actions at the level above (Fig. 2).\textsuperscript{50}

In chronic and complex emergencies and in countries emerging from conflicts that have severely limited the capacity of pre-existing governance management, priority should arguably be given to essential governance functions and to the mobilization of political commitment. Appropriate governance underpins success in other areas and is required to guarantee the functioning of the system at its most basic level, for example: in establishing (if not already in existence) a mechanism for health workforce policy dialogue and planning, a system to dynamically monitor health workforce stock and
distribution, and a fund pooling mechanism for the sustainable and integrated financing of the health workforce; revamping mechanisms for the execution of agreed health workforce policies by subnational health administrations; and reinstating a functional payroll while removing the records of both ghost workers or actual workers that are no longer part of the workforce, which may have been added during the period of crisis.

An analysis of the policy and governance environment and of mechanisms for health workforce policy development and implementation is required, and should guide the identification of the most relevant and appropriate levels and interventions to strengthen the capacity of health workforce stewardship and leadership. Remembering that there are no best practices that can simply be replicated across all countries, responses to the challenges raised by these action fields are context-specific and each country must design its own.

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None declared.

References


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Fig. 1. Linking of the action fields of the Human Resources for Health Action Framework to improve health workforce management.

Source: [adapted from Human resources for health action framework](#).

UHC: universal health coverage.

Note: Adapted from *Human resources for health action framework*.3
Fig. 2. Hierarchy of needs in capacity building for effective stewardship of human resources for health

Note: Adapted from Potter C & Brough R, 2004, to illustrate relevant health workforce policy levers and external factors.50