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ON HEALTH SYSTEMS RESEARCH
Science to accelerate universal health coverage

Health workforce: the critical pathway to universal health coverage

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KEY MESSAGES

Countries affected by health workforce shortage and/ or maldistribution are highly unlikely to achieve universal health coverage. In the absence of benchmarks on density and distribution of health workers required to achieve universal health coverage, more specific targets are necessary considering the country needs and realities, and the potential contribution of non-traditional cadres, such as community health workers and mid-level health providers.

Multi-pronged approaches for health workforce development, such as task shifting, training and retention efforts, have led to progress in improving coverage for infectious disease control. Comprehensive strengthening of health workforce, and scaling up workforce production for the continuum of maternal, newborn and child health care are options for working towards population-specific universal coverage. These lessons can be applied also for comprehensive universal health coverage, as countries progressively broaden the objectives of their health systems.

Investment should be made in both implementing policies and approaches of proven efficacy, such as those enshrined in the Kampala Declaration and Agenda for Global Action, and in strengthening the evidence base to better inform policy making.

Priority topics for research in the health workforce domain were identified in 2008, ranging from strategies to address rural retention and dual practice problems, to (cost-)effectiveness of different training and regulation approaches. Some progress has been registered in implementing the research agenda identified (for instance new evidence - and normative guidance - has emerged on rural retention approaches, and the determinants of effectiveness of task-shifting are now better understood), but many areas represent persisting evidence gaps to date.

Success stories in achieving universal health coverage from several countries have been reported in the literature, but few have been applied at scale in other countries. Contextual differences enabling these successes must be more carefully studied to extrapolate findings to other contexts. Combined approaches suitable for complex systems, such as systems thinking, realist review, and national platform evaluation, are useful to understand the reality of maldistribution, retention problems, and performance issues of the health workforce, learning not only what works (or not), but how, for whom, and under what context.

EXECUTIVE SUMMARY

Health workers remain in many countries the weakest link of health systems: according to the World Health Report 2006 (WHR 2006), 57 countries fell below the critical threshold of 2.3 physicians, nurses and midwives per 1,000 population, considered generally necessary to achieve an acceptable level of coverage of essential health services. In addition to shortage and maldistribution challenges, limited training capacity, weak management systems and poor working conditions, including inadequate financial and non-financial incentives, conspire to determine high attrition and poor morale and performance.

Exploring the intersections between the universal health coverage paradigm and the current health workforce challenges and opportunities requires an analysis of all the interconnected aspects of the planning, production and management of human resources for health, across the working lifespan of health workers.

Lack of standard definitions for certain health worker cadres, absence of comparable data sources and weak health workforce information systems prevent having a full picture of the status of health workforce at the global level, and in low- and middle-income countries in particular.

Based on available information, many countries affected by the heaviest burden of disease fall far below the recommended minimum density of health workers, despite recent investments by many countries and development partners to scale up education of health workers.

A concentration of health workers in urban areas is a recurrent feature in most low- and middle-income countries, having a detrimental effect on (equitable) coverage of essential health services and health outcomes.

Among the countries facing health workforce shortage and maldistribution, there have been different approaches to overcome challenges and move towards universal health coverage. We categorize them broadly in disease-specific approaches, comprehensive horizontal approaches, and semi-horizontal approaches. The strategies adopted don't have in reality such tightly defined boundaries, and typically they are implemented together within the same country, but it is useful to adopt this classification to explore and describe the policy discourse and the health system responses to health workforce challenges as they have evolved in the last decade.

Disease-specific approaches to health workforce strengthening have been documented more extensively in the case of HIV and AIDS programmes. Multi-pronged approaches for health workforce development, such as task shifting, training and retention efforts, have led to progress in progressing towards universal coverage for HIV/ AIDS. Approaches such as comprehensive strengthening of health workforce, and scaling up workforce production for the continuum of maternal, newborn and child health care are options for working towards population-specific universal coverage. These lessons can be applied also for comprehensive universal health coverage, as countries progressively broaden the ambitions and objectives of their health systems. Broadening the disease-specific universal coverage paradigm to universal access to maternal, newborn and child health services as an intermediate milestone is a valid approach towards attaining a more comprehensive (horizontal) universal health coverage.

Much of the evidence discussed in the report comes from low-income countries. However many middle-income countries have managed to overcome health workforce impediments, reaching universal coverage with more limited resources than high-income countries through a variety of strategies and approaches to both scale up and retain their health workforce. It is possible to examine these experiences to draw inferences of relevance to low-income countries.

The need for more and better evidence in relation to human resources for health has been underscored by a number of initiatives and studies over the last decade.

Some information needs relate to the routine management information systems of the health sector, including for instance the availability, distribution, employment status and performance of health workers. Others may relate to information required to track developments of particular initiatives, such as the minimum dataset required to monitor the implementation of the Code of Practice on internal recruitment of health workers. There are also significant evidence gaps in relation to wider policy approaches and strategies to develop, maintain and optimize the performance of the health workforce.

Due to the complexity of HRH interventions, and the limitations in extrapolating findings of HRH studies and evaluations to other contexts, multi-method approaches are needed to strengthen the research efforts, both in high and low-income countries. Mixed approaches can allow a sound effectiveness evaluation to be complemented by an understanding of the reality and context for successful implementation.

The health workforce truly represents the critical pathway to achieve universal health coverage, but shortage, maldistribution and performance challenges hinder the attainment of even more modest objectives, such as selective (disease-specific or population-specific) coverage with essential health services.

There is a global consensus on priority strategies to address the health workforce crisis, which is enshrined in the Kampala Declaration and Agenda for Global Action. Governments and other stakeholders should fully implement these strategies to bolster human resources for health.

In terms of increasing health worker availability, the target of 2.3 physicians, nurses and midwives per 1,000 population is not attainable in all contexts, because funding the proposed number of highly skilled health workers would require some low-income countries to devote an unrealistic proportion of their gross domestic product (GDP) to health. The expansion of non-traditional cadres, such as community health workers and mid-level health providers, should be considered as a priority policy option in these contexts.

Several evidence-based policy options to improve retention of health workers in rural areas have been identified, including measures related to education and training, regulation, financial and non-financial incentives, management support. Countries should select and implement the ones most relevant to the local context. Interventions to improve quality and performance have been less rigorously studied in low- and middle-income contexts.

As efforts are intensified on maternal and child health in the drive to progress towards universal health coverage in the context of a global financial crisis, health systems research should strengthen the normative and evidence base that can contribute to sound policy setting and planning, thereby ensuring that scarce resources are increasingly directed towards interventions of proven effectiveness and that represent the best value for money.

LIST OF ACRONYMS

AIDS	Acquired Immunodeficiency Syndrome
ART	Anti-Retroviral Therapy
CHPS	Community-based Health Planning and Services
CHW	Community Health Worker
CPIRD	Collaborative Project to Increase Production of Rural Doctors
DFID	Department for International Development
EHRP	Emergency Human Resource Programme
EPI	Expanded Program on Immunization
GDP	Gross Domestic Product
GHWA	Global Health Workforce Alliance
GRADE	Grading of Recommendations, Assessment, Development and Evaluation
HIV	Human Immunodeficiency Virus
HRH	Human Resources for Health
IMCI	Integrated Management of Childhood Illnesses
ISCED	International Standard Classification of Education
ISCO	International Standard Classification of Occupation
ISIC	Industrial Classification of All Economic Activities
JICA	Japan International Cooperation Agency
JLI 2004	Joint Learning Initiative report 2004
MCE of IMCI	Multi-Country Evaluation of Impact, Cost and Effectiveness of Integrated Management of Childhood Illness
MDG	Millennium Development Goal
MMR	Maternal Mortality Ratio
MNCH	Maternal, Newborn and Child Health
NCD	Non-Communicable Disease
NGO	Non-Governmental Organization
NHIS	National Health Insurance Scheme
OPD	Outpatient department
PEPFAR	U.S. President's Emergency Plan for AIDS Relief

PLHIV	People Living with HIV
PMNCH	Partnership for Maternal, Newborn and Child Health
PMTCT	Prevention of Mother-to-Child Transmission
UNICEF	United Nations Children's Fund
VHV	Village Health Volunteers
WHO	World Health Organization
WHR 2006	World Health Report 2006

INTRODUCTION

All people everywhere will have access to a skilled, motivated and supported health worker, within a robust health system.¹

This is the vision of the Global Health Workforce Alliance (GHWA), which was launched in 2006 as part of the response to the global HRH crisis, highlighted in the *World Health Report 2006 - Working together for health* (WHR 2006).²

The WHR 2006 further stated that, “The ultimate goal of health workforce strategies is a delivery system that can guarantee universal access to health care and social protection to all citizens in every country”.

The universal health coverage paradigm is built around the concepts of availability, accessibility, acceptability and affordability.³

The correlation between availability of health workers, coverage of health services and health outcomes is well established.⁴ In this sense, progress in health workforce strengthening is a pre-requisite in moving towards universal coverage. Health workers however remain in many countries the weakest link of health systems: according to the WHR 2006, 57 countries fell below the critical threshold of 2.3 physicians, nurses and midwives per 1,000 population, considered generally necessary to achieve an acceptable level of coverage of essential health services (WHO 2006, op cit).

The global shortage, estimated by World Health Organization (WHO) at 4.3 million health workers (WHO 2006, op cit), is compounded by uneven geographical distribution within countries, with a concentration of highly skilled personnel in urban areas, and exacerbated by international migration from low- and middle-income countries to countries that offer better working conditions and remuneration. As health workers are the direct providers of health services, their presence and distribution impacts directly on the availability and accessibility dimensions of universal health coverage.

Limited training capacity, weak management systems and poor working conditions, including inadequate financial and non-financial incentives, conspire to determine high attrition and poor morale and performance of health workers, which can negatively impact on quality and acceptability of services provided, as well as their affordability when poorly remunerated staff engage in survival strategies, such as charging under-the-table out-of-pocket payments.

With a view to such realities, the WHR 2006 report laid out a ‘working lifespan’ approach, and since then the policy discourse on health workforce at global and country level has broadened to considered the policies and strategies relating to the stages when people enter the workforce, the period of their lives when they are part of it, and the point at which they make their exit. For example, education and training are key issues in the entry stage. Then, in the active performance stage, supervision, effective incentives, systems support and lifelong learning can be the keys to improve performance. Finally, at the exit stage, migration and attrition must be overcome. All of these stages are crucial not only for overcoming the present crisis, but to cope with emerging health workforce challenges in low-income countries.

It is clear, therefore, that exploring the intersections between the universal health coverage paradigm and the current health workforce challenges and opportunities requires an analysis of all these interconnected aspects of the planning, production and management of human resources for health.

Of great importance as well is the increasing recognition that the socio-economic fabric of a society also influences heavily the inequitable production, deployment and distribution of health workers, having a bearing on the education, recruitment and deployment and retention patterns. Multi-strategic approaches to ensure equitable and universal coverage of health workers should also address such social determinants.⁵

In recognition of the fundamental importance of the health workforce in attaining universal health coverage objectives, the technical attention to and political momentum for health workers has grown considerably in the past few years. After the 2004 Joint Learning Initiative report (JLI 2004) and the WHR 2006 had raised attention to the issue, GHWA convened the First Global Forum on Human Resources for Health in Kampala in March 2008 and adopted the *Kampala Declaration and Agenda for Global Action*, which has become the global reference on priority strategies to address the health workforce crisis. Then, in July 2008, the Toyako G8 summit supported the Declaration and drew attention to the health workforce, and more recently the grave impact of the health workforce challenges on the possibility of attaining the health Millennium Development Goals (MDGs) was a strong undercurrent of the UN High Level Summit on the MDGs⁶.

Against this backdrop, in this paper we explore through a selective literature review (see annex 1) critical issues relating to the health workforce that can contribute to the movement towards universal health coverage. Building on a framework first proposed by Rhode et al,⁷ which categorizes health systems according to whether they provide

selective (less than 50%) coverage, comprehensive (over 80%) coverage and in transition between selective and comprehensive coverage (between 50% and 80%); we also explore how different countries have adopted different strategies and intermediate targets to gradually move towards universal health coverage, differentiating between *disease-specific universal coverage*, *semi-horizontal universal coverage* (limited to the care of maternal, newborn and child health), and *horizontal universal coverage*.

To contextualize the findings of our analysis we start by providing an overview of the definition and current state of the health workforce in low-income countries. Then, we present evidence in support of interventions to scale up the health workforce towards achieving disease-specific universal coverage, towards semi-universal coverage by highlighting health workforce interventions specific to maternal, neonatal and child health, and finally, we deal with horizontal universal coverage. We also try to identify lessons learned from middle-income countries to complement evidence from low-income countries.

Finally, we reflect on the strength and wider applicability of the available evidence, identifying some strategic directions for policy makers where the evidence base is sufficiently robust, and delineating a way forward for researchers where the limitations and weaknesses of the information basis prevent drawing clear policy recommendations.

STATE OF THE HEALTH WORKFORCE IN LOW-INCOME COUNTRIES

Definition of health workers remains a controversial issue in many low-income countries, as their roles and competencies differ from country to country.⁸ An understanding of the current status of the health workforce requires addressing three categories of questions, relating, respectively, to density (*How many?*), distribution (*Where? Who?*), and performance (*What do they do? How do they do it?*)⁹

Definition

WHO defines health workers as “all people engaged in actions whose primary intent is to enhance health” (WHO 2006, op cit). In addition, a new more operational framework has been recently proposed (Dal Poz et al 2009, op cit), which divides health workers into three categories:

- A. Those with health education and training working in the health sector;
- B. Those with training in a non-health field (or with no formal training) working in the health sector;
- 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.

The sum of the three elements (A, B, and C) yields the total potential health workforce available. In this way, the framework can be a useful tool for identifying potential data sources and gaps for health workforce analysis. Population censuses and labour force surveys can provide information on all three elements, while health facility assessments or payroll and other administrative records provide data only for the active health workforce.

In addition to raw numbers, a labour market analysis is critical for getting an accurate diagnosis of production, deployment, distribution and other aspects related to the health workforce at national and sub-national level.

Health workforce classification is another important dimension of health worker definition. As for internationally standardized classifications, three types can provide a coherent framework for categorizing fields and levels of training, and occupations and industries of employment according to shared characteristics: the International Standard Classification of Education (ISCED), the International Standard Classification of

Occupations (ISCO), and the International Standard Industrial Classification of All Economic Activities (ISIC).^{ibidem}

The ISCO-2008 classifies health workers into three sub-categories: health professionals (with 14 professional titles), health associate professionals (with 16 professional titles) and personal care workers (with 3 professional titles). Moreover, 5 titles of additional health-related unit groups are identified, such as health service managers. Therefore, in total, the ISCO-2008 designates 38 occupational titles.^{ibidem}

When the health worker crisis was advocated as an issue in the mid-2000s, it was mostly the number of medical doctors, nursing, and midwifery professionals which tended to be highlighted. This perspective was based on the ISCO-1988. Now, under ISCO-2008, medical doctors are divided into two titles: general medical practitioners and specialist medical practitioners. Nursing and midwifery professionals are also divided into two classes: Nursing professionals and midwifery professionals. This more nuanced categorization hopefully will lead to better future estimates of existing capacity, needs and gaps to achieve universal health coverage. Yet the revised categories have yet to be effectively reflected in health workforce policy making, as most countries continue to plan their health workforce targets in terms of physicians, nurses and midwives. Community-based health workers and mid-level health providers frequently don't have a definition, which contributes to their limited integration in health sector planning and management, despite their important contribution to scaling up coverage of essential health services in low- and middle-income countries.^{10,11}

Density

In its WHR 2006, the WHO recommended a density target for all countries: a minimum of 2.3 physicians, nurses, and midwives per 1,000 people. This goal was set based on the ISCO-1988 to “attain adequate coverage of some essential health interventions and core MDG-related health services”. This point suggests that the 2.3 per 1000 target is not set with a view to horizontal universal coverage.

The momentum created by the WHR 2006 spurred attention at the global level and action at the country level, in particular in relation to the production of new health workers through education and training. Brazil, Ethiopia and India were among the countries who scaled up education and training at national scale.¹²

Bilateral donors took action as well: an exemplary case of a large-scale response is the United States Government *President's Emergency Plan for AIDS Relief* (PEPFAR), which carried out activities in 14 low-income and 19 middle-income countries between 2004 and 2009. As a result of PEPFAR initiatives, the overall number of health personnel trained or retrained was 5,255,400. Of that total, 1,547,600 were trained during 2009 alone.¹³ These training activities however have been largely related to in-service training, and have therefore focused primarily on expanding the skill set of existing health workers (in particular in relation to preventive, promotive and curative services for HIV and AIDS). As a result of the recognition that even disease-specific universal coverage for HIV services is not feasible under existing health workforce constraints, PEPFAR has also committed to the training of 140,000 new health workers.¹⁴

And similarly there are several other initiatives which have attempted to increase health worker availability: an initiative by the UK Department for International Development (DFID) has set a target to raise the existing number of health workers from 26,683 in 2006 to 45,904 by 2015 in Mozambique.¹⁵ Likewise, the Japan International Cooperation Agency (JICA) has committed to train and retrain 100,000 health workers in Sub-Saharan Africa after the Toyako G8 Summit.¹⁶ Through the Catalytic Initiative to Save a Million Lives (10), UNICEF has worked together with the Ministry of Health and trained nearly 6,000 community health workers (CHWs) in Malawi and 4,000 CHWs in Ghana.¹⁷ And when national governments take action themselves, much more ambitious targets and results can be attained: Brazil for instance trained hundreds of thousands of community health workers through its Family Health Programme,¹⁸ And Pakistan has similarly trained large number of lady health workers.¹⁹

Despite these efforts, according to WHO Health Statistics 2010 the patterns of health worker density don't reflect a univocal trend, showing some increases, some decreases, some countries with no change, and some countries with mixed results, with simultaneous increases and decreases in different cadres of their health workforces. These may be partly due to the lag time of both surveys and administrative records to capture differences in availability of health workers, as well as the weaknesses and heterogeneity of data sources.

Even with the more modest objective of semi-horizontal coverage, Bossert and Ono argue that the target of 2.3 physicians, nurses and midwives per 1,000 population is not realistic at the country level,²⁰ because funding the proposed number of health workers

would require some low-income countries to devote a huge proportion of their gross domestic product (GDP) to health: for example, Ethiopia would have to devote 53% of its GDP to health in order to reach the WHO target, if the current ratio between physicians and nurses or midwives remains constant. Moreover, according to their projections, 46 countries would not reach the target even if they devoted 8% of their GDP to health. They propose that more realistic, country-specific targets will have a better chance of winning the support of national governments and donor stakeholders.

If the WHO health workforce target, 2.3 per 1000 population, is not realistic, what is a realistic density for which to aim? Assuming a ceiling of 8% of GDP, Bossert and Ono calculated attainable targets per 1000 people as 0.35 health workers (physicians, nurses, and midwives) for Ethiopia, 0.71 for Tanzania, and 2.34 for Kenya. Though seemingly realistic, these targets imply that Ethiopia and Tanzania might not be able to achieve the MDGs in their current economic situations, a conclusion also supported by a needs-based study set in Tanzania.²¹ These analyses bring a necessary dose of realism but they can also ring of pessimism.

These three types of health workers (physicians, nurses, midwives) were selected because the available data are more reliable compared with that on other health workers. Kruk and colleagues examined the relationships between doctor and nurse concentrations and utilization rates of five essential health services, including caesarean sections, measles vaccinations, and tuberculosis diagnosis, in developing countries. By this approach, they found that the densities of doctors, nurses and aggregate health workers were not associated with essential health services such as caesarean section and tuberculosis diagnosis. To explain this result, they argued that health workers who are neither doctors nor nurses, such as clinical officers and community health workers, may be providing a substantial proportion of health services in such settings.²²

Moreover, a growing body of literature supports the role of mid-level workers, who are not doctors but have been trained to “diagnose and treat common health problems, to manage emergencies, to refer appropriately and to transfer the seriously ill or injured for further care”.^{23,24,25} A similar body of evidence is emerging for community health workers (Lewin 2010, *op cit*; Global Health Workforce Alliance 2010, *op cit*).

However, regarding the density of mid-level health workers and community health workers, little has been documented. Although more evidence is needed, the WHO is proposing a core indicator for health worker density: the number of health workers per 10,000 population.²⁶ The target number still needs to be determined on the basis of what is required to attain a minimum level of service coverage, but the direction now is

to go beyond physicians, nurses and midwives; included in this new model is a wide range of other categories of service providers, such as mid-level health providers, community health workers, dentists, pharmacists as well as management and support workers. This orientation seems like an appropriate direction, and further research is expected to identify more realistic country-specific targets.

Distribution

According to the WHO report on ‘increasing access to health workers in remote and rural areas through improved retention,’ approximately 50% of the global population lives in rural areas, but these areas are served by 38% of the total nurses and 24% of the total physicians.²⁷ This situation is especially dire in 57 countries facing health workforce crises: for example in Bangladesh 30% of nurses are located in four metropolitan districts, where only 15% of the population resides.²⁸ In many countries maldistribution is arguably a more pressing problem than absolute scarcity,²⁹ and patterns of service coverage reflect a similar trend, with disadvantaged and rural areas having a lower service coverage than urban areas.³⁰

As retention is one of the key strategies to solve maldistribution problems, the topic has gained attention in the *Kampala Declaration (2008)*³¹ and the *G8 Communiqué (2008)*.³² The *Commission on Social Determinants of Health (2008)* (WHO 2008, op cit)) and the *High-level Taskforce on Innovative International Financing for Health (2009)*³³ also urged action to improve retention in rural areas.

The WHO report seeks to identify evidence-based recommendations for improving retention, and categorized them into four broad groups: education, regulation, financial incentives, and personal and professional support (WHO 2010, op cit).

Policy options relating to education include the possibility to locate health professional schools outside of major cities.³⁴ A related approach is to revise pre-service education curricula to reflect rural health issues.³⁵

In the area of regulation, options include to scale up education of the types of health workers who are most likely to meet rural health needs (Mullan 2007, op cit), and optimizing the impact of compulsory service programmes, which, if well planned with incentives, can contribute to a nation’s plan for health workforce capacity development,

distribution and retention in rural and underserved areas.³⁶

Regarding financial incentives, evidence suggests that rural retention can be improved by making it worthwhile for health workers to move to remote or rural areas by combination of fiscally sustainable financial incentives.^{37,38}

Finally, it is necessary to improve living conditions, personal and professional support, opportunities for career development, and recognition for health workers.^{39,40,41}

When a retention strategy is being designed, it is advisable to perform a thorough market analysis as a key early step in the whole policy process (from the identification of problems, the selection of candidate interventions through to implementation and monitoring and evaluation). Undertaking this step, together with the analysis of the context, would lead to better strategies to improve retention of and increase access to health workers.

Another dimension of imbalance of the health workforce relates to gender. In many countries, women tend to be concentrated in the lower-status health occupations, and to represent a minority among more highly trained professionals, such as physicians, dentists, pharmacists and managers. As decisions tend to be made by men, there is a risk of paying less attention to particular features of working conditions to protect women. To overcome this risk, gender mainstreaming in health workforce monitoring and evaluation strategies is recommended (Dal Poz 2009, op cit).

Performance

The performance of health workers comprises both personnel efficiency and provider quality (Bossert et al 2007, op cit). To improve performance, we need to ensure that the “pipeline to generate and recruit the health workforce” exists and is functional, and that “education and training programmes are adapted to the changing needs of the population”.⁴²

Yet the determinants of health worker performance have not been studied well in low-income countries. Theoretically, a core indicator to assess the performance of the health workforce is ‘primary health care attendances/ total staff’. However, available research utilizing this indicator is limited.

An interesting emerging methodology to measure health worker performance is the application to this field of realist evaluation approaches.⁴³

For example Marchal and colleagues used a realist evaluation framework for hypothesis formulation, data collection, data analysis and synthesis of findings, and evaluated the role of human resource management in hospital performance in Ghana. Methodologically, they found that the realist evaluation can be fruitfully used to develop detailed case studies that analyze how management interventions work and in which conditions. In their specific case, Marchal and colleagues suggested that a well-balanced style of human resource management can stimulate organizational commitment on the part of health workers.⁴⁴

This realist approach was also taken in a review paper analyzing human resource management interventions to improve health workers' performance in low- and middle-income countries.⁴⁵ The authors' realist perspective identified which human resource management interventions might improve performance, under which circumstances, and for which group of health workers. They also proposed detailed indicators for evaluating health workers' performance, as part of monitoring and evaluation activities that should be a fundamental part of the policy process. This paper emphasizes the need of systems thinking and realist approach to address complex policy interventions such as retention of human resources of health in underserved areas. Both approaches entail the use of qualitative and quantitative methods.

The role of financial incentives in improving health workers performance has received a lot of attention and financial support in recent years.⁴⁶ There are selected examples where results-based financing of essential health services has worked: Rwanda for example has improved the performance of its health workers through a results-based financing scheme that is credited to have contributed to increases in coverage of essential services.⁴⁷ At the global level, however, the evidence on the effectiveness of performance-based financing schemes is less univocally supportive of this policy option.⁴⁸ Moreover the introduction of performance-based financing is a highly complex type of interventions, whose potential system implications may go beyond what can be conceptualized at the design stage or measured through short-term data collection efforts. As in many complex interventions, a systems thinking approach is required to evaluate the feasibility and the appropriateness of performance-based financing schemes.⁴⁹

PATHWAYS TO UNIVERSAL COVERAGE

Among the countries facing health workforce shortage and maldistribution, there have been different approaches to overcome challenges and move towards universal health coverage. We categorize them broadly in disease-specific approaches, semi-horizontal approaches, and comprehensive horizontal approaches. The strategies adopted don't have in reality such tightly defined boundaries, and typically they are implemented together within the same country, but it is useful to adopt this classification to explore and describe the policy discourse and the health system responses to health workforce challenges as they has evolved in the last decade.

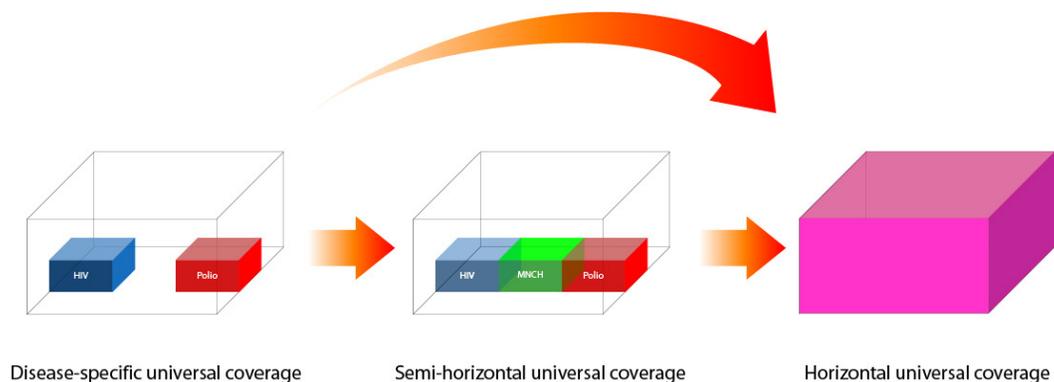


Figure 1: transition through different stages of universal coverage.

Disease-specific universal coverage

Though many types of disease-specific universal coverage issues have been experienced in low-income countries, HIV/AIDS is worth highlighting as it has been the most complex and well-documented case in the literature. The shortage of health workers is a chronic problem, exacerbated by the direct effect of the HIV/AIDS epidemic on the health workforce.^{50,51} In contrast, most of the countries hardest hit by the AIDS pandemic have limited capacity to cope with newly emerging epidemics such as non-communicable chronic diseases, cancer, mental health, and injuries.

Health workforce shortage: barrier to scaling up ART access/coverage

Until 2002, antiretroviral therapy (ART) coverage was severely limited in low-income countries. As a result, nearly 95% of people infected with HIV worldwide had limited access to ART.^{52,53} This was primarily due to the high cost of the drugs and the lack of an adequate health system infrastructure (especially health workers) for delivering ART.⁵⁴

Under global initiatives, such as the Global Fund to fight AIDS, Tuberculosis, and Malaria, and PEPFAR, and with improved commitment on the part of governments, ART was provided free of charge and the main financial barrier was thus removed. As patient demand was considerably increased, the health workforce shortage was recognized as a key constraint that limited the effective scale-up of HIV services to meet projected goals.^{55,56}

Strategies to strengthen the health workforce for HIV/AIDS

To overcome the bottleneck for scaling up HIV services, new strategies were adopted including the WHO's Treat, Train and Retain campaign.⁵⁷ This particular initiative consisted of a three-step programme with the objective to increase the ranks of personnel able to deliver HIV services.

The first strategic step is HIV treatment, prevention and care services for health workers infected with and affected by HIV. In 2001, it was estimated that between 19% and 53% of all deaths of government health employees in African countries were caused by HIV/AIDS;⁵⁸ and the absence and loss of staff due to HIV/AIDS further increased the workload of an already overburdened health workforce.^{59, 60, 61, 62} In response, programmes focusing on health workers' HIV treatment and care were established in several countries in sub-Saharan Africa, resulting in declines in HIV-related attrition of health workers.^{63,64,65,66}

The second pillar of the overarching strategy is training new health workers and retraining the existing personnel, who can then absorb some of the responsibilities of the highly skilled personnel through task shifting, thus more efficiently using the available health workforce, and allowing the expansion of the overall human resources pool.

Training on HIV and AIDS has been supported by global initiatives, most notably by PEPFAR.⁶⁷

Scaling up the health workforce has been effectively achieved through task shifting from physicians to non-physician clinicians, nurses, community health workers and even patients. This approach has been shown to increase the coverage and services provided for HIV patients, without affecting the quality of services when adequately planned and supported, both in relation to delegation of tasks to other cadres of health professional^{68,69,70,71,72,73,74} and to community health workers.^{75,76,77,78,79,80,81,82,83,84}

Task shifting in Mozambique

The combination of the high burden of HIV and major shortages in the health workforce created the need for new strategies to expand ART coverage in Mozambique. Funding from global initiatives provided the opportunity to strengthen the health workforce through training and task shifting. With a limited number of physicians who could be trained to initiate ART, Mozambique's government focused its efforts on training non-physician clinicians, or "tecnicos," to expand HIV services. This cadre was selected because of its shorter training requirement (2.5 years), lower training costs, and cheaper salaries compared to physicians.

By 2006, newly graduated "tecnicos" were deployed, especially to rural and peri-urban health facilities. With a nationwide 2-week training for "tecnicos" on HIV care and the authorization to prescribe ART, the number of health facilities delivering ART rapidly increased. While in 2003, only 12 health facilities delivered ART to 3,314 HIV-positive patients, by 2009, 220 sites were offering ART and the number of patients had increased to 170,000. This initiative succeeded in covering 38% of adults and children in need of treatment.⁸⁵ Moreover, ART scale-up was achieved without compromise in quality of service. Performance evaluations showed equivalent or better quality of care for patients whose providers were "tecnicos" compared to those whose providers were physicians (Sherr et al 2009, op cit).

Box 1: Increasing ART coverage by non-physician clinicians in Mozambique

The last strategic cornerstone of health workforce strategies relating to HIV is retention, as it focuses on maintaining the numbers of health workers by reducing their migration. Reduction is mainly intended to be achieved through financial and non-financial incentives. Among the non-financial incentives, opportunities for training and professional advancement have been established in Gambia, Ghana, Malawi, and Uganda. In Rwanda, the government is improving the working conditions by refurbishing clinics and buying new equipment. And in Ethiopia, to attract and retain health workers to remote rural facilities, they are building staff houses at ART and PMTCT sites.⁸⁶ The effectiveness of these strategies has not been consistently and rigorously evaluated, but it appears that a disease-specific approach implies trade-offs in terms of the overall health system effects.

System-wide effects of a specific-disease approach

Although great progress has been achieved through this vertical approach for HIV/AIDS, some shortcomings have also emerged.⁸⁷ As described by Marchal and colleagues,⁸⁸ these negative effects include pitfalls such as duplication (development of parallel and non-integrated systems, imbalance (internal brain drain), and interruption (e.g. disease-specific training activities contributing to absence of health workers from duty station).^{89,90,91,92}

At the same time, positive effects on non-HIV services have also been observed. In Ethiopia, scale-up of ART and HIV counseling and testing have not affected the performance of other health programmes such as tuberculosis and maternal and child services. Immunization, contraception, and antenatal care coverage have increased substantially, while tuberculosis detection rates have been stable despite the decline in the number of physicians. This has been achieved through training of low- and mid-level health workers and task shifting (Asefa 2009, op cit). In Zambia, an analysis of health facility client records showed scale-up in reproductive health service numbers, such as in antenatal and family planning services, in the same facilities where HIV services were scaling up.⁹³

Integration into the health system

The scale-up of HIV/AIDS services began as an emergency response to the crises of high infection and death rates, and the urgent need for prevention and treatment efforts.⁹⁴ However, as coverage of HIV interventions increases, challenges to sustain this progress arise. The growth in the number of people living with HIV (PLHIV) and their need for ART may further increase the health workforce needs.^{95,96} The rising prevalence and improved life expectancy of PLHIV creates a need to build novel systems to support chronic care for millions of patients.⁹⁷

A possible solution is integration of this disease-specific approach into the primary health care services. A framework for this successful implementation exists, such as the public health approach to ART, developed by the WHO.⁹⁸ Such an approach enables standardized and simplified treatment protocols for a decentralized service delivery.⁹⁹ Successful examples from Zambia and Mozambique show that the integration process is feasible in low-resource and high-HIV-prevalence settings.^{100,101}

Semi-horizontal universal coverage

Some countries are orienting themselves towards a different approach to achieve universal health coverage. Existing know-how on disease-specific approaches can provide insights for developing horizontal universal access programmes that initially target specific services or populations (such as women and children under 5 years of age) in low-income countries. This approach can represent an intermediate strategy for low-resource settings to start with, as the horizontal universal coverage approach gradually expands.¹⁰²

As shown in Figure 1, the universal coverage of HIV treatment and polio immunization can represent intermediate milestones in low- and middle-income countries. Although the final objectives should remain a universal health coverage, success can come by attaining, as a further intermediate milestone, universal coverage of maternal, newborn and child health (MNCH) services first.

Putting mothers and children first

In the last few years there have been sustained calls for more efforts to be directed to accelerate the progress toward MDGs 4 and 5.^{103,104,105,106} The global community now has a strong focus on MNCH delivery through strengthening of health systems as the platforms of service, with emphasis on human resources for health.¹⁰⁷

Some countries have improved maternal mortality outcomes, marked by high coverage of skilled attendance at birth (Rhode et al 2008, op cit). However, low coverage, poor quality, and inequalities in the provision of maternal, neonatal and child health remain challenges in many low-income countries, particularly in Sub-Saharan Africa, and on current trends it is unlikely that the target of a 75% reduction in the maternal mortality ratio (MMR) by 2015 can be met.¹⁰⁸ Similarly, also progress in reducing child mortality is too slow to achieve MDG targets in most countries (Bhutta et al 2010, op cit). There is a consensus that increasing the coverage of key maternal, newborn, and child health interventions through scaling up the health workforce is essential if MDGs 4 and 5 are to be reached. However achieving the required level of scale up is going to be challenging if the shortage and maldistribution challenges that affect the health workforce in the countries with the highest burden of maternal and child mortality are not addressed (Bhutta et al 2010, op cit). Shortage and maldistribution are not the sole challenges related to the health workforce: low quality of care provided by health

professionals is also a barrier to universal access to MNCH.¹⁰⁹

A number of initiatives signal the willingness of governments to address the underlying health system factors that hinder delivery of maternal and child health services;¹¹⁰ due to the interactions within different elements in health systems, most of these have, directly or indirectly, a bearing on the health workforce. For example initiatives to make maternal and child health services free at the point of use, a right step in removing barriers to utilization, impact on health workers workload, and need to be adequately prepared and resourced if their positive impact is to be maximized.^{111,112}

Strategies for maternal and child health workforce

Similarly to the experience accumulated in the HIV and AIDS field, there is a growing body of evidence that improving the effectiveness and reach of the health workforce is possible through task shifting and a more rationale design of the health workforce, with a cadre and skills mix more responsive and appropriate to the needs of low- and middle-income countries. These measures have the potential to expand MNCH service provision.

Simple tasks can be shifted to a lower level such as through the use of community health workers and mid-level health providers. CHWs have shown great potential to outreach and provide basic services, for example immunization, contraceptive services or community case management of maternal and child diseases (Global Health Workforce Alliance 2010, op cit).

More complex tasks can be delegated to mid-level health worker cadres with appropriate training, such as non-physician clinicians and midwives.^{113,114,115}

In an observational multi-country study performed in Bangladesh, Brazil, Tanzania and Uganda as part of the Multi-Country Evaluation of the Cost, Impact and Effectiveness of Integrated Management of Childhood Illness (MCE of IMCI), it was shown that IMCI-trained health workers with a shorter duration of training performed at least as well and sometimes better than those with a larger duration of training in the assessment, classification and correct management of sick children and in counseling tasks.¹¹⁶

Data for the 2010 Countdown cycle indicated that 19 of 68 priority countries (28%) were on track to meet MDG 4 (Bhutta et al 2010, op cit), several of which are also experiencing a health workforce crisis, as defined by the *World Health Report 2006* in terms of shortage of physicians, nurses and midwives.

The role of factors unrelated to the health system (such as poverty reduction, increased education of women etc) in reducing child mortality - especially in Latin America, should not be underestimated.^{117,118,119} However the role of non-traditional cadres (community health workers and mid-level health providers) in delivering essential health services may help understand how some countries with shortage of physicians, nurses and midwives are in reality on track to achieve MDG 4 (relative to reductions in child mortality)

In some contexts the necessary policy change or required investment can also concern traditional cadres, especially the ones, like midwives, that too often end up neglected by health workforce plans, such as midwives, despite their fundamental role in improving maternal and newborn health outcomes.

Strengthening midwifery in Nigeria.

In 2008, the National Health Bill passed, making a direct funding line for primary health care available. Nigeria also embarked on a unique health intervention called the “Midwives Service Scheme” to address the human resource gap in implementing this strategy to improve maternal health. In total, 2488 midwives have been deployed in over 650 primary health care centres in rural communities, providing skilled attendance at birth. These health-system improvements will contribute to the long-term interests of Nigeria, the largest nation in Africa, for meeting MDGs 4 and 5.¹²⁰

Box 2. Scaling up midwifery services in Nigeria

Delivering any strategy on improving MNCH will require not only additional numbers of health workers, but also strengthened human resource capacity. Integrated human resource strategies should be part of national MNCH programmes to ensure that the quality of MNCH services is well-managed, and that the health care professionals are involved in national-level planning. Strengthening human resource capacity in communities and countries is crucial in every aspect, including improving the number and the competencies of health workers, managers, administrators, and MNCH stakeholders.¹²¹

Towards horizontal universal coverage

The disease-specific approach has brought great success in combating critical diseases. Countries with high HIV/AIDS prevalence adopted interventions targeting HIV/AIDS as their first step towards universal coverage. The health workforce was strengthened both in quantity and quality to overcome the shortage in HIV/AIDS services. An enormous number of people have gained health benefits from the vertical approach, as discussed in the previous section.

As HIV/AIDS disease progression has turned chronic, and lack of progress on other important health priorities has been highlighted, recent global campaigns have gradually shifted to interventions taking the population health approach on the platform of a sustainable system. The health systems in these countries are currently facing new challenges to tackle emerging epidemics such as non-communicable chronic diseases, cancer, mental health, and injuries, in addition to the persisting burden of communicable diseases and maternal, newborn and child morbidity and mortality. Horizontal universal coverage may be the solution if we are to reach health, poverty eradication, and human rights goals.¹²² Achieving horizontal universal health coverage is now a growing priority for all nations, regardless of income level.

The Kampala Declaration and Agenda for Global Action, adopted at the first Global Forum on Human Resources for Health, provide the overarching framework for the necessary action required to address health workforce challenges, and move towards universal health coverage (GHWA 2008, op cit).

Forging partnerships for health workforce solutions

The Agenda for Global Action, adopted in Kampala, Uganda, in 2008, envisages forging global, regional, national and local partnerships to implement six interconnected strategies to address the health workforce crisis.

1. Building coherent national and global leadership for health workforce solutions
2. Ensuring capacity for an informed response based on evidence and joint learning
3. Scaling up health worker education and training
4. Retaining an effective, responsive and equitably distributed health workforce
5. Managing the pressures of the international health workforce market and its impact on migration
6. Securing additional and more productive investment in the health workforce.

Box 3: Agenda for Global Action.

Comprehensive scaling-up approach to achieve more horizontal universal coverage

Some countries have chosen a more comprehensive approach to deliver interventions in scaling up the health workforce, working towards a health system with the capacity to deliver universal coverage. Malawi, Ethiopia and Ghana are examples of countries that have started with a series of interventions of this variety.

Malawi is experiencing one of the most severe human resource shortages in sub-Saharan Africa. Since Malawi's health surveillance assistants disclosed the national health workforce crisis (Rhode et al 2008, op cit), a wide scope of innovative interventions has been implemented. With the aid of development partners, the Ministry of Health launched a comprehensive Emergency Human Resource Programme (EHRP) in 2004, focusing on retention, deployment, recruitment, training, and tutor incentives for 11 priority cadres.

The EHRP was reviewed in its final report in July 2010, showing that the initiative has achieved its primary target in increasing the number of professional health workers by 53%, from 5,453 in 2004 to 8,369 in 2009. However, only four of the 11 cadres (physicians, clinical officers, laboratory technicians, and pharmacy technicians) have met or exceeded their targets as set in the EHRP. There were only 43 physicians in

2004, but 265 in 2009, marking a 516% increase. Additionally, 917 trained medical personnel graduated in 2004, compared with 1,277 in 2009, showing an increase of 39%. The density of health providers, including health surveillance assistants showed a 66% increase, from 0.87 per 1,000 population in 2004, to 1.44 per 1,000 population in 2009.

The impact on health outcomes was analyzed by assessing changes in service delivery and, thereby, health outcomes, using the Lives Saved Tool (LiST). The evaluation found that 13,187 additional lives were saved due to increased coverage of services.¹²³

Similarly, Ethiopia has initiated the Health Extension Program to tackle the acute shortage of health workers in 2004. The Program is part of the Health Sector Development Plan, which focuses on both human resource development and construction and rehabilitation of facilities; it aims to train 30,000 new Health Extension Workers to work, and to provide a package of essential interventions to meet health service needs at the community level. To this end, 700 faculty members are trained in regional workshops by 85 trainers, and they in turn deliver a one-year course. Moreover, 5000 additional health officers were trained to supervise the Health Extension Workers and to provide more specialist care for those needing referral by 2009. Incentive packages, career ladders and training are being included in the Program. Through the Civil Service Reform Programme, regional authorities are developing health workforce management plans. A simultaneous expansion of primary health care infrastructure is taking place to accommodate newly trained health workers.¹²⁴ Reservations have however been expressed in terms of adequacy of training and referral systems.¹²⁵ ,

Hence, with the implementation of the Health Extension Program in Ethiopia, the need for health workers evolved from the massive number of community health workers demanded, to demands for their supervisors, and then to demands for specialists for referrals. An improvement in the infant mortality rate was observed, dropping from 91 per 1000 in 2000 to 69 in 2008,¹²⁶ even though the multiple factors that influence health outcomes prevent drawing firm inferences on the extent of the impact of the community health extension worker programme on mortality.

Since the National Health Insurance Scheme (NHIS) law became effective in 2005, Ghana has developed a new human resources strategic plan to guide scale-up from 2007 to 2011. A review of the previous 2004 programme of work in the health sector found that failure to achieve health outcomes was due to the poor distribution and low morale of the health workforce. This has prompted the renewal of the former Community-based Health Planning and Services (CHPS) programme, with strong aims to scale up the

coverage of community health officers in rural areas. The plan is part of a broader health sector plan including prioritization of general health system development and other health promotion strategies, which is in line with the President's goal of bringing Ghana to middle-income country status by 2015.

As part of Ghana's new strategic plan for human resources, training institutions are encouraged to increase intake of all cadres of health workers, and practitioners and new university graduates are motivated to take on teaching responsibilities. Mid-level cadre training is expanded at the fastest rate. New training programmes were also implemented to double the output of medical assistants in the next two years. Increasing levels of salary, incentive programmes involving housing and rural bonuses, and bonding schemes have been formulated to retain the workers.¹²⁷ As more Ghanaians registered for national health insurance, a continual strengthening of the health workforce has been necessary to meet the increased need for services. It is clear that Ghana's universal coverage scheme would not be successful without comprehensive health workforce strengthening.

It is not completely clear whether the benefits of these programme have accrued uniformly across population strata and wealth quintiles due to lack (or limitations) of evaluations, but these initiatives demonstrate that success is possible, and lives can be saved, also with a comprehensive horizontal approach to strengthening of the health workforce.

LEARNING LESSONS FROM MIDDLE-INCOME COUNTRIES

Much of the evidence presented in the preceding sections originates from low-income countries. However, many middle-income countries have managed to overcome health workforce impediments, reaching universal health coverage with more limited resources than high-income countries. South Africa, Thailand, and Chile are among the countries who have developed a considerable experience in developing and implementing multifaceted health workforce strategies; it is possible to examine these experiences to draw inferences of relevance to low-income countries.

Planning and training to meet health workforce needs

South Africa is clearly attempting to address its health workforce needs and has taken action by implementing the South African National Human Resources Plan for Health developed in 2006. The plan aimed to double annual national production of medical practitioners (from 1,200 to 2,400) by 2014. For professional nurses, the yearly production is expected to reach 3,000 by 2011 (currently 1,896 per year).¹²⁸

As part of the plan, a new mid-level cadre, the clinical associate, was introduced to the South African strategic plan of human resources for health (HRH). This new cadre of health workers is seen as a long-term solution to improve the delivery of district health care and to address the inequity and marginalization in rural and urban health care by ensuring access, cost-effectiveness and adaptability in team approaches.¹²⁹ Another useful experience from this country is its one-year period of compulsory community service for health professionals, implemented since 1998. This has resulted in better staffing levels in rural hospitals, shorter patient wait times and more frequent visits to outlying clinics by health workers have been observed. However, 34% of compulsory service doctors intended to leave South Africa after completing the obligation, and an additional 13% planned to go into private practice, findings that highlight both the short-term benefits and the longer term drawbacks of this approach.¹³⁰

The Government of Thailand is another example of a country that, despite having already achieved its universal health coverage objectives, continues to recruit more health workers. A project to accept 10,678 medical students during 2005-2014 was approved in 2005. On top of the existing 14 medical schools participating in the initiative -- 13 public universities and one private university -- four more public universities have started to provide training for doctors in 2008.¹³¹ There are similar

plans to scale up the production of nurses.

Due to the high turnover rate of rural doctors, a 10-year Collaborative Project to Increase Production of Rural Doctors (CPIRD) was implemented in 1994 by the Thai Ministry of Health with the collaboration of the medical universities. The project is characterized by its local recruitment, local training, and hometown placement approach. The goal was to generate 300 doctors each year specifically for placement in rural areas. The students were recruited by participatory mechanisms at the provincial level. They were required to spend their first three years at medical school and their next three years at one of 12 regional hospitals or district hospitals. Just before the implementation of universal coverage, the project was able to increase the proportion of rural medical students from 23% in 1994 to 31.5% in 2001.¹³²

Another interesting initiative undertaken by the Government of Thailand is its village health volunteers (VHVs) programme, counting on a legion of 791,383 health volunteers nationwide, mostly female, who are part of the health workforce, and who are making an important contribution to the achievements of the national health system.¹³³

In Chile, incentives were offered to medical doctors for service in rural areas. The Rural Practitioner Program in Chile, launched in 1955, attracted physicians to work in rural primary health care hospitals and health centres for a minimum of three years. The incentives include financial, education, and management opportunities. Data to evaluate this programme exist from the year 2000. Within the period 2001-2008, the recruitment and acceptance rates were 100% with minimum exits, and very few vacant positions were left over the course of one year. The retention rate is lower, as it is more difficult to motivate physicians to stay for the maximum period, achieving only 58% of the maximum length of stay. A survey of 202 participants showed that more than 90% considered their experience in the programme as positive.¹³⁴

EVIDENCE-INFORMED POLICY DECISIONS

We have reviewed some selected examples and experiences of relevance to the health workforce policy debate. It must be acknowledged, however, that the information basis on which policy recommendations and programmatic and management decisions have to be taken by decision makers is imperfect. The need for more and better evidence in relation to human resources for health has been underscored by a number of initiatives and studies over the last decade.^{135,136,137,138}

Some information needs relate to the routine management information systems of the health sector, including for instance the availability, distribution, employment status and performance of health workers (Dal Poz et al 2009, op cit); others may relate to information required to track developments of particular initiatives, such as the minimum dataset required to monitor the implementation of the Code of Practice on internal recruitment of health workers, and track the extent of cross-border health worker movements.¹³⁹

There are also significant evidence gaps in relation to wider policy approaches and strategies to develop, maintain and optimize the performance of the health workforce (Chopra et al 2008, op cit). The Alliance for Health Policy and Systems Research, in collaboration with WHO, has developed through a participatory consultative process a list of the priority topics for research in the health workforce domain, which range from strategies to address rural retention and dual practice problems, to (cost-)effectiveness of different training and regulation approaches.¹⁴⁰ Some progress has been registered in implementing the research agenda identified (for instance new evidence - and normative guidance - has emerged on rural retention approaches, and the determinants of effectiveness of task-shifting are now better understood), but many areas represent persisting evidence gaps to date.

It is worth noting that, even where new evidence has emerged, allowing the development of recommendations and guidelines, research gaps persist that need to be addressed through further exploration. For example the WHO guidelines on health workers retention in rural areas (WHO 2010, op cit) acknowledged that many of the studies contributing to the evidence base were in reality based in high-income countries, and concluded restating the need for “more research in low-income countries.”

It is important to point out that evidence on health workforce policy options typically is

drawn not only from quantitative research, but also from qualitative studies.

As we have seen in the preceding sections, success stories in achieving or at least moving towards universal health coverage from several countries have been reported in the literature, but few have been applied at scale in other countries. Contextual differences enabling these successes must be more carefully studied to extrapolate findings to other contexts.

Due to the complexity of HRH interventions, and the limitations in extrapolating their findings to other contexts, multi-method approaches are needed to strengthen the research efforts, both in high and low-income countries. Mixed approaches can allow a sound effectiveness evaluation to be complemented by an understanding of the reality and context for successful implementation. The experimental paradigm that privileges randomized controlled studies under controlled conditions is often unfeasible or unethical, it frequently yields limited impact evidence, and says little about the mechanisms underlying the success or failure of public health interventions such as those related to HRH.¹⁴¹ As these interventions are usually implemented at scale in several countries, an alternative national evaluation platform approach based on the district level as the unit of design and analysis has recently been proposed,¹⁴² building on an evaluation study of The Child Survival and Development programme in west Africa,¹⁴³ the MCE of IMCI effort,^{144,145,146} ¹⁴ and the Catalytic Initiative to Save a Million Lives,¹⁴⁷ taking forward an earlier discourse on implementation research.^{148,149} The district platform evaluation approach may allow continuous monitoring of several indicators; gathering of additional data before, during, and after the evaluation period by multiple methods; use of several analytical techniques to deal with various data gaps and biases; and inclusion of interim and summative evaluation analyses.¹⁵⁰ Another potential advantage of this new approach is that it may promote country ownership, transparency, and donor coordination while providing a rigorous comparison of the cost-effectiveness of different scale-up approaches (Victora et al 2010, op cit).

CONCLUSIONS

Without addressing crucial bottlenecks in human resources, the backbone, yet often weakest link, of health systems, it will not be possible to achieve universal health coverage. In this sense the health workforce truly represents the critical pathway.

There is a global consensus on priority strategies to address the health workforce crisis, which is enshrined in the Kampala Declaration and Agenda for Global Action.

Governments and other stakeholders should commit and hold themselves and one another accountable to fully implement the strategies to bolster human resources for health. Achieving these objectives will require massive investments both by national governments and by development partners to provide support especially to low-income countries, as well as a more efficient use of resources through a rationale planning of cadre and skills mix.

Different countries have experienced with different strategies to progress to universal health coverage, in some cases attempting to achieve disease-specific or population-specific objectives on a priority basis as intermediate objectives on the path towards comprehensive (horizontal) universal health coverage. Experiences have been gathered and documented on successful strategies with all types of approaches, and to a certain degree transfer of ideas and evidence can take place (e.g. task shifting, piloted and documented through HIV and AIDS initiatives, is an approach that has significant potential also with regards to maternal and child health, and possibly many other health priorities.

In the past decade, health workforce strengthening has risen on the health development and international relations agenda, and is now mainstreamed in the discourse of the most visible health initiatives and priorities, relating to HIV, maternal and child health and others. The high visibility of issues such as international brain drain, or the impact of human resource deficits on global health initiatives has been instrumental in opening a deeper dialogue on the underlying determinants of these problems, and created an opportunity for synergistic action on these challenges at country and global level.

Together with increased attention, political commitment has also increased, and in some cases this has already been reflected in higher resource allocation to production, deployment and retention of health workers.

In order to usefully support decision making and resource allocation processes, the international community, through its technical partners as well as academic and research institutions, should strengthen the normative and evidence base that can contribute to sound policy setting and planning.

For example the normative basis according to which claims of "shortage" and "distribution" challenges are made should probably be revised; new benchmarks are required that better reflect a more diverse composition of the health workforce, which goes beyond physicians, nurses and midwives and that represent more attainable and realistic targets also considering the financial constraints faced by many low-income countries. In terms of setting objectives and benchmarks, beyond quantitative targets it may be helpful also to provide recommendations exploring other dimensions, including geographical distribution, and gender composition, minimum standards and competency frameworks, and other aspects related to wider management practices. The extent to which these issues can be generalized through global standards or recommendations, vis-à-vis the development of context- (or country-) specific targets should also be explored.

There is scope for decision makers to make more use of available evidence on which policies and strategies work and which not, a reality that calls for greater efforts being directed to knowledge brokering and evidence-based advocacy. At the same time the evidence base on which policies are set should be strengthened, addressing persisting evidence gaps (Ranson et al 2010, op cit).

Doing so will require revisiting some traditional paradigms of how health systems evidence is gathered and used. Low-income countries suffer most from the paucity, maldistribution and uneven quality of their health workforce. Their culture is complex, and what may have worked in middle- or high-income countries should be carefully evaluated before findings are extrapolated, be they on appropriate retention strategies or performance-based financing. In middle-income countries, planning and training, expanding the health workforce with volunteers, and using compulsory measures and incentives to retain health workers were measures taken to meet health workforce needs. However, looking merely at 'what works' is not sufficient. Instead, a holistic understanding of 'what works for whom under what context' must be sought (De Savigny 2009, op cit), recognizing the complexity of health system interventions targeting the health workforce.

Contextual differences enabling these successes must be more carefully studied to turn one success story into multiple success stories. For this we need to put more emphasis on multi-method approaches suitable for analysis and evaluation of complex public health interventions, which entail both quantitative and qualitative evidence, and go beyond the experimental paradigm relying on randomized or quasi-randomized controlled trials, evidence which is not included in Grading of Recommendations, Assessment, Development and Evaluation (GRADE) methodology to develop global health recommendations.

Experience demonstrates that when sound strategies, adequate resources and political commitment come together, progress is possible, and lives can be saved.

As efforts are intensified on maternal and child health in the drive to achieve universal health coverage in the context of a global financial crisis that has constrained both domestic and overseas development assistance for health budgets, health systems research has a key role to play to generate the evidence requisite to ensure that scarce resources are increasingly directed towards interventions of proven effectiveness and that represent the best value for money.

ANNEX 1. METHODS FOR LITERATURE REVIEW

This paper was prepared on the basis of a selective review of the literature identified from a search of PUBMED, MEDLINE, Cochrane Reference Libraries, the WHO database, the Capacity Project website, HRH Global Resource Center, Google, and Google Scholar. The following search terms were included: coverage, universal, health insurance, health for all, access to health care, health care quality assurance, distribution, maldistribution, performance, density, education, training, task shifting, retention, HIV, maternal neonatal and child health, maternal mortality, child mortality, low-income countries, middle-income countries, and developing countries. Each of these terms was searched independently and then searched with the addition of another set of terms: health worker, human resources for health, health workforce, doctor, physician, nurse, midwife, skilled birth attendants, community health workers, mid-level health worker, and non-physician clinician. Examination of cross-references and bibliographies of available data and publications to identify additional sources of information was also performed. The material used is limited to that published in English.

For each chapter or section of the paper, we modified our search strategy. To describe the definition and the state of the health workforce in low-income countries, we did a literature search for papers published between 2006 and 2010, focusing on studies from low-income countries, though a few exceptions were made. The search included studies about density, distribution (retention), and performance. For the disease-specific universal coverage sections, we conducted a literature search for papers published between 2000 and 2010, and focused on studies and interventions for scaling up access to HIV/AIDS prevention, treatment and care through health workforce strengthening, in low-income countries. For the next section, from disease-specific to more horizontal universal coverage, we did a literature search for papers published between 2000 and 2010, focusing on studies and interventions for improving maternal, neonatal and child health, in low-income countries. Finally, for the parts on lessons learned from middle-income countries, we performed a literature search for articles covering middle-income countries having more than 95% universal coverage,¹⁵¹ focusing on interventions to improve the health workforce.

This literature review does not attempt to provide a detailed systematic analysis of everything that has been written about universal coverage and health workforce, but it aims to comprehensively capture its key elements and examples to illustrate them.

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