

# Scaling Up, Saving Lives



**Task Force for Scaling Up Education and Training for Health Workers, Global Health Workforce Alliance**



**World Health  
Organization**



**global health  
workforce  
alliance**



# Scaling Up, Saving Lives

## Task Force for Scaling Up Education and Training for Health Workers

### Global Health Workforce Alliance

2008

*Scaling Up, Saving Lives ...* **urgent action to tackle worldwide shortage of health workers ...** *Scaling Up, Saving Lives ...* **thousands die or are disabled every year ...** *Scaling Up, Saving Lives ...* **immediate investment in community- and mid-level health workers ...** *Scaling Up, Saving Lives ...* **part of a comprehensive scaling up of the whole health workforce ...** *Scaling Up, Saving Lives ...* **education and training based on the health needs of the country ...** *Scaling Up, Saving Lives ...* **quality-, community- and team-based ...** *Scaling Up, Saving Lives ...* **long-term national and international commitment and funding ...** *Scaling Up, Saving Lives ...* **US\$2.6 billion a year to educate and train 1.5 million health workers in Africa ...** *Scaling Up, Saving Lives ...*



## Foreword

Health workers are the cornerstone and drivers of health systems. And yet the world is facing a serious shortage of health workers – a shortage that is identified as one of the most critical constraints to the achievement of health and development goals.

This crisis is impairing the provision of essential, life-saving interventions such as childhood immunization, safe pregnancy and delivery services for mothers, and access to treatment for HIV/AIDS, malaria and tuberculosis.

New and innovative initiatives are urgently needed to increase the numbers of trained health workers. This requires scaling up investment in education, skill mix and remuneration of the workforce as laid out in the Kampala Declaration and Agenda for Global Action, endorsed in March 2008 at the First Global Forum on Human Resources for Health.

In March 2007, the Director General of the World Health Organization, Dr Margaret Chan, launched the Task Force for Scaling Up Education and Training for Health Workers, under the auspices of the Global Health Workforce Alliance (GHWA), to look at these critical issues and report back with solid recommendations and guiding principles for action.

Its report – *Scaling Up, Saving Lives* – calls for a rapid and significant scaling up of the education and training of health workers as part of a broader effort to strengthen health systems. It highlights the importance of training to meet a country's own health needs and the great opportunity represented by the increased use of community- and mid-level workers.

The Task Force's analysis also demonstrates that this scaling up is affordable. Countries such as Brazil and Ethiopia are already implementing the model and reaping improvements in the health status of their populations.

The evidence is there. We must learn from the examples of best practice we are seeing in the world. Sustained political commitment and investment to train more health workers and reduce the global shortage is critical to turning the recommendations laid out in *Scaling Up, Saving Lives* into reality.

This is a global problem needing global solutions. GHWA thanks the Task Force for its leadership, dedication and commitment in the research and production of this report. Its recommendations are an important and exciting development for the health workforce community. GHWA urges all those involved in resolving the health workforce crisis to learn from and implement the recommendations from the report, to bring us closer to our vision that every person, in every village, everywhere has access to a skilled, motivated and supported health worker.

Let us all unite to uphold GHWA's call for 'all for health workers and health workers for all'.

Dr Lincoln Chen  
Founding Chair  
Global Health Workforce Alliance

Dr Sigrun Møgedal  
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Global Health Workforce Alliance



## Preface

The desperate shortage of health workers in the world means that millions of people die or are disabled unnecessarily. A large part of the problem is simply that not enough health workers are being educated and trained.

We were asked by the Global Health Workforce Alliance to bring together an international group of people to review the experience of countries and research from around the world, and draw up practical proposals for how to scale up massively the education and training of health workers.

*Scaling Up, Saving Lives* is the result.

The good news is that there is now plenty of evidence and many examples of what can be done – practically and effectively.

So why – as we have heard political leaders ask – are we not seeing the same improvements everywhere?

We could, and the proposals set out in this report will lead to results, but only if we work together with determination and sustained commitment. More needs to be done to turn existing knowledge into action at national and international level. The global political climate provides a moment of opportunity which should not be missed.

Everyone has a part to play in dealing with the global health workforce crisis – governments, education leaders, international development partners and donors, local partners, and the public and private sector. Political leadership, backed by predictable and long-term financing to support well-constructed national scale-up plans, is critical.

*Scaling Up, Saving Lives* has benefited from the experience and wisdom of many people from around the world. We would like to thank the members of the Task Force, the many people we consulted, and particularly Imogen Sharp – the Task Force Director – who led the work and the production of this report, Peter Walker who developed the work on education and training, Manuel Dayrit and his team at the World Health Organization, and the many colleagues at the World Bank who provided their support so willingly.

Now is the time to act!

Lord Nigel Crisp

Commissioner Bience Gawanans

Co-Chairs, Task Force for Scaling Up Education and Training for Health Workers,  
Global Health Workforce Alliance

# Acknowledgements

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The report was produced under the overall direction of Imogen Sharp, with background research and specific chapters produced by the teams in Ottawa, Geneva and London as well as at the World Bank.

The Task Force is also grateful to the many other people who contributed to the development of *Scaling Up, Saving Lives*, and provided valuable inputs including policy advice and technical support, who are acknowledged on pages 111 and 112.



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# Executive summary and recommendations

In 2006, the World Health Organization alerted the world to a shortfall of 4.3 million trained health workers globally, with the worst shortages in the poorest countries. As a direct result, millions die or are disabled every year and the Millennium Development Goals will not be achieved unless remedial action is taken.

The Global Health Workforce Alliance (GHWA) was launched at the time of World Health Assembly Resolution 59.23 in 2006, to tackle these issues. In turn, GHWA set up task forces to address specific aspects of the problem such as health-worker education and training, migration and financing.

*Scaling Up, Saving Lives* sets out the findings and recommendations of the Task Force for Scaling Up Education and Training for Health Workers. It complements the GHWA *Agenda for Global Action*.

The Task Force has focused on countries with a health workforce crisis, particularly in Africa, and has found that current policies and plans are failing. The number of people being educated and trained is too small to make a difference. This is compounded by the fact that there is little international coordination of effort and, all too often, differential salary scales between public sector, international and private organizations, which drive up costs and lead to movement from the public sector, poor working conditions, and significant international migration of health workers.

The situation needs to improve. Traditional approaches will not work – and thousands of people in the poorest countries in the world will continue to suffer unless we implement changes and a better way forward.

Yet many leaders in developing countries know what needs to be done. *Scaling Up, Saving Lives* draws together evidence from countries such as Brazil, Ethiopia and India of what can and has been done practically and effectively to increase the education and training of health workers quickly and on a national scale, by national governments as well as education and training bodies. It sets out the critical success factors and effective strategies for scaling up education and training, based on a review of the evidence. The report also describes the economic background and the decisions that need to be made, and estimates that it will cost an additional US\$2.6 billion a year to educate and train 1.5 million additional health workers just in Africa.

This is a global problem. *Scaling Up, Saving Lives* sets out proposals for concerted action on a massive scale – with the international community fully supporting national leaders – **to make sure that everyone has access to a suitably trained and motivated health worker as part of a functioning health system, and that:**

- **national governments draw up 10-year scale-up plans and implement an immediate and huge increase in community- and mid-level health workers – trained, paid, supervised and able to refer on to more skilled workers – alongside the expansion of education and training for all groups of health workers;**

- education and training curricula are focused on the health needs of the country, are community- and team-based, draw on the resources of the public and private sectors and the skills of international partners, and make greater use of innovative means to increase training capacity, such as information and communication technologies and regional approaches; and
- development partners and international organizations give strong backing to national scale-up plans, with a big increase in dedicated long-term funding for education and training and much better coordination and cooperation.

## 10 recommendations for concerted action

1. Presidents and prime ministers of developing countries create the framework for concerted action on scaling up the education and training of health workers in their country. They bring together leaders from the public and private sectors, civil society and international organizations, as part of a concerted effort, to develop shared plans as an integral part of their wider poverty reduction and social and economic development programmes. They seek to provide the substantial funding needed for scale-up plans – as part of the overall development of health systems – with contributions from government itself, development partners and international organizations.
2. Governments and local, national and international organizations use the findings from this Task Force on the *critical success factors* for national scale up and the *principles and strategies* for education and training – which are based on evidence of what has worked in the past – as a common framework for country action.

Within this framework:

3. Governments, led by health ministers, and including education, labour and finance ministers and, where appropriate, the civil service commissioner, set out a clear vision for their health workforce, which describes the full range of health workers needed, and lead the development of a 10-year scale-up plan – with short-, medium- and long-term actions, including a massive and immediate increase in community- and mid-level health workers alongside expansion of education and training for more highly trained and specialized health workers.
4. Education ministers and heads of education institutions support the scaling up of health workers with new curricula that are community-, competency- and team-based, aligned with country health priorities and are an integral part of health service delivery – and begin implementation with immediate practical actions such as training trainers, increasing the number of qualified faculty, reducing attrition of teaching staff and students, maximizing use of facilities, and enabling staff to return to healthcare.

5. Local, regional and international organizations build South–South, South–North, regional and public–private partnerships, to deliver increased investment; build up the necessary infrastructure of knowledge and expertise in basic science, public health and management; create centres of excellence; and deliver innovative education and training, based on countries' burdens of disease and healthcare systems, and with support from developed countries.
6. All development partners commit a significant proportion of their financial support to a country as dedicated funding for a country's health plan, in agreement with the government, including the Finance Minister. Some of this would be used to finance the strengthening of health systems, including education and training of health workers, with the exact proportion agreed locally. As an example, the *World Health Report 2006* proposes that 50% of development aid for health is spent on strengthening health systems, with 50% of this being spent on health workforce plans, including education and training. This needs to be accompanied by greater flexibility from finance ministries and the International Monetary Fund, to allow increased support for human capital development and greater investment in the development of health and education systems.
7. The global health initiatives, nongovernmental organizations and all other international health organizations working in a country align their education and training programmes with country health plans and priorities, allocate funds to pre-service education to achieve an appropriate balance between pre-service education and in-service training, tackle fragmentation and duplication, and support the development of wider country health infrastructure. They should also commit to keeping staff pay broadly in line with that of publicly funded health workers.
8. National governments, with support from regional and international organizations, agree on quality assurance systems for education and training, including accreditation, and indicators of progress appropriate to the needs of their country, and develop systematic methods for quality improvement, including quality standards for service and monitoring.
9. The new international initiatives which are addressing health systems and human resources and are part of the Global Campaign for the Health Millennium Development Goals, support 10-year country scale-up plans for human resources, aligned to country health plans, and coordinate their financial and other support. They should sponsor 'real-time' collaborative learning on scaling up among groups of countries with critical health workforce shortages and research on human resources for health, in both developing and developed countries.
10. GHWA continues to play a central role in focusing world attention on education and training as part of wider human resources issues in health, and in the dissemination of learning and good practice.



# Scaling up: A vision for the future

# 1

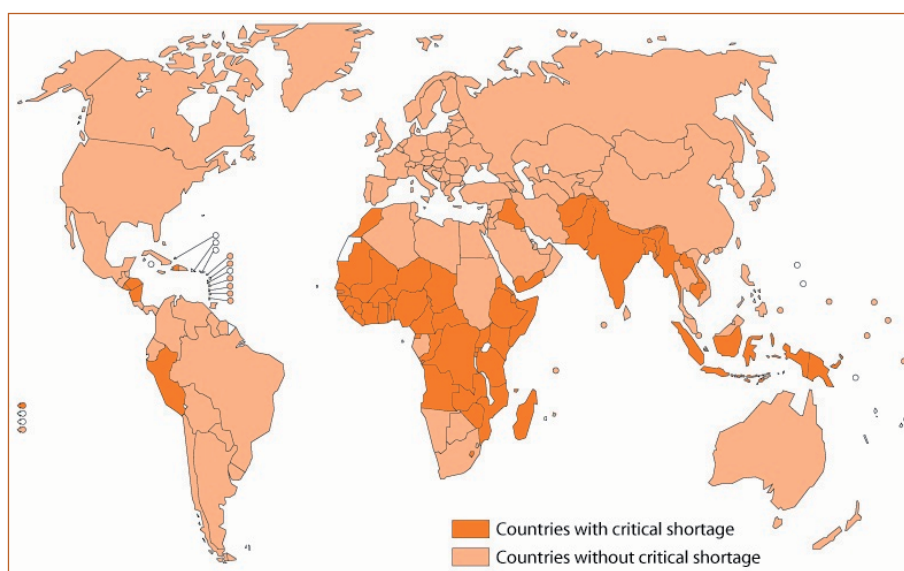
Over a billion people worldwide have little or no access to health services and the help and advice of health workers. As a result, millions die or are disabled every year.

In 2006, the World Health Organization (WHO) alerted the world to a shortfall of 4.3 million trained health workers globally. Without enough health workers, the health-related Millennium Development Goals (MDGs) and other health goals will not be achieved.

This is a global problem that affects all countries in different ways, but the greatest shortages are in the poorest countries (see figure 1). Fifty-seven countries are in crisis, including 36 in sub-Saharan Africa, six in South East Asia, and five in Latin America and the Caribbean.<sup>1</sup>



**Figure 1: Critical shortages and maldistribution of health workers**



Source: WHO, *The World Health Report 2006: Working together for health*.

With only 10% of the world's population, Africa bears 24% of the global disease burden but has only 3% of the world's health workforce and less than 1% of the world's financial resources for health (see figure 2).<sup>1</sup> Sub-Saharan Africa alone needs 1.5 million more health workers to provide basic health services for its population.\*

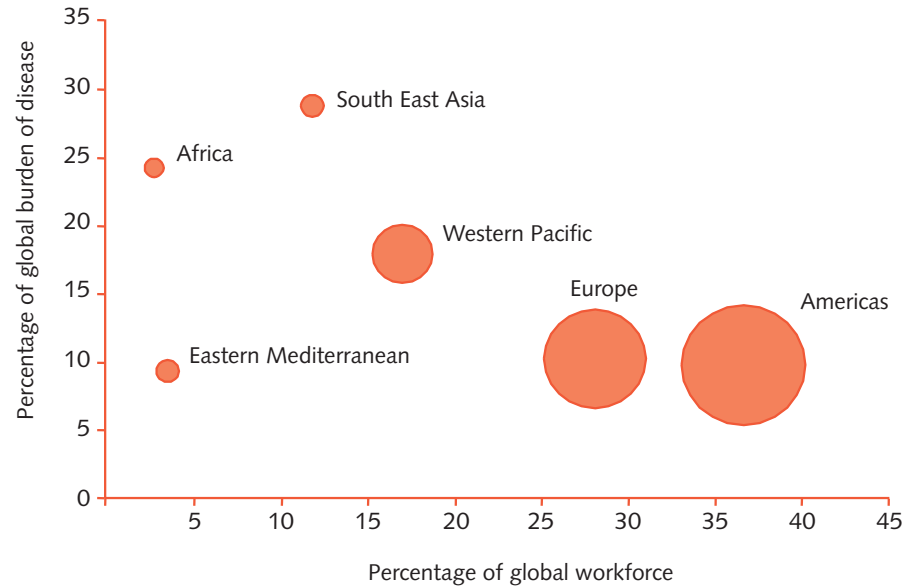
Unless drastic measures are taken, the situation is likely to get even worse. The double burden of infectious and noncommunicable diseases in developing countries and the ageing population in developed countries is placing

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\*The *World Health Report 2006* estimated a global shortage of 4.3 million health workers. This represents a shortage of 2.4 million doctors, nurses and midwives, multiplied by 1.8 (the average ratio of total health workers – including community- and mid-level health workers, and management and other support staff – to doctors, nurses and midwives). The equivalent extrapolation for Africa means that there is a total shortage of 1.5 million health workers in the African Region alone.

increasing demands on health systems worldwide. Projections show that an extra 8.5 million healthcare workers will be needed by 2025.<sup>2</sup>

**Figure 2: Distribution of health workers by level of health expenditure and burden of disease, by WHO region**



Source: WHO, *The World Health Report 2006: Working together for health*.

*The global health workforce is critical to human security, human development and human rights.*

**Francis Omaswa,**  
Global Health  
Workforce Alliance

## Current policies and plans are failing

The many causes of the health workforce crisis have been described and analysed in several documents.<sup>1,3</sup> They include changing patterns of disease, population trends, economic conditions and a lack of global attention to the issue. HIV/AIDS has taken a major toll on the health workforce in many poor countries, as have international migration, poor wages and working conditions, lack of health infrastructure and political instability.

But the basic problem is that not enough health workers have been educated, trained and employed. To take one example, Ethiopia trains about 200 doctors a year for a population of about 75 million; the United Kingdom trains more than 6,000 doctors for a population of about 60 million.<sup>4</sup>

This massive shortfall in the production of health workers underpins all other causes of the crisis. If all the doctors trained in Ethiopia in the last 30 years were still working in the country, there would be about one doctor per 10,000 population. In the United Kingdom, there is one doctor for about every 450 people.

During the past few years, a global consensus has emerged, among governments and development partners, that this is a crisis that needs urgent action. There is no single or simple solution – and no ready-made answer. Any solutions need to reflect the multiple causes of the health-worker shortage, and anticipate future pressures, in a country-specific way. Scaling up education and training needs to be at the heart of every country's response.



The case for scaling up the health workforce has been made in numerous policy documents. Both the Joint Learning Initiative and the *World Health Report 2006* called for a concerted international effort to increase the quantity and quality of health workers through education and training.

In 2006, the World Health Assembly called on all Member States to contribute to a rapid scale-up of the production of health workers. Resolution 59.23 urged Member States to affirm their commitment to training and education by encouraging more financial support from global health partners, including support from industrialized countries to strengthen human resources and to mitigate the impact of migration. The resolution also calls for the development of national comprehensive health workforce strategies.<sup>5</sup>

Now is the time to act. Traditional approaches will not work – thousands of people in the poorest countries in the world will continue to suffer unless we implement changes and chart a better way forward.

## **Scaling Up, Saving Lives – a better alternative**

The Global Health Workforce Alliance (GHWA) was launched in 2006, at the time of the World Health Assembly, bringing together multiple stakeholders to address the critical shortfall of health workers. It, in turn, set up task forces to tackle particular aspects of the problem: education and training, human resources management, migration and financing.

The Task Force for Scaling Up Education and Training for Health Workers was established to address the production of health workers. It brought together governmental and nongovernmental partners from Africa, Asia and South America and from developed countries, as well as development partners such as WHO, World Bank, Bill and Melinda Gates Foundation, International Council of Nurses and the private sector, including Merck & Co.

This report, *Scaling Up, Saving Lives*, is the result.

The Task Force met five times over a year from 2007 to 2008. The ministers, health and education professionals, and development partners who formed the Task Force reviewed evidence from countries and institutions across the world, to learn from their scaling-up experiences and to draw out key lessons on what has worked. The focus of the Task Force was mainly on countries that have achieved, or are implementing, a large-scale increase in their overall health workforce, or of a specific cadre. It learnt in particular from 10 countries – Bangladesh, Brazil, Ethiopia, Ghana, India, Kenya, Malawi, Pakistan, the United Republic of Tanzania and Venezuela – each studied in some detail to distil the factors that contribute to success and to find examples of innovation (see case study summaries on page 101).

The Task Force examined research evidence and innovations in education and training from countries and institutions across the world that have achieved some degree of success in scaling up to address their national health priorities. It drew in particular on the output of a technical working group of education and health professionals. But there is also a need for further evaluation of scale-up efforts and sharing of practice.

Ethiopia trains about 200 doctors a year for a population of about 75 million; the United Kingdom trains more than 6,000 doctors for a population of about 60 million.

The Task Force also consulted widely – taking evidence from those actually dealing with these problems in government, in education and training, and in the front-line delivery of health services. It discussed its proposals with ministers, education leaders, health professionals and other experts, including those from a number of the 57 countries with a crisis in human resources, as well as developed countries with useful experiences. Common themes were identified and the emerging conclusions were successfully road-tested in an African Union-led consultation meeting in Addis Ababa in November 2007.

Throughout, the Task Force looked for practical, innovative and effective solutions. It is very clear that many leaders in developing countries are already taking action and know what needs to be done. This report brings together in one place the lessons learnt from their experience.

*Scaling Up, Saving Lives* sets out the challenge and the opportunities, as well as the key components of a practical response in the following way:

- The case for increasing the number of health workers and the global opportunities for a massive scale-up (chapter 2).
- The critical success factors for national country-led action (chapter 3).
- Determining what types of health workers to scale up (chapter 4).
- A set of guiding principles and strategies for education and training, and a 10-year plan for implementation (chapter 5).
- Improving the efficiency and effectiveness of international organizations working in a country (chapter 6).
- Increasing national and international funding for health worker production and employment (chapter 7).
- Measuring progress and investing in monitoring and evaluation (chapter 8).

The Task Force recommends that immediate action should be taken in all these areas – where it is not already under way. In particular:

- there are common critical success factors for national country-led action which, the evidence shows, need to be in place for any successful attempt to scale up training and education. These underlie all the proposals in *Scaling Up, Saving Lives*;
- there are innovations and strategies in education and training that need to be put into practice, to link them more closely with the health needs and services of a country; and
- there are things that the international community needs to do urgently – including providing greater, sustained funding and improving coordination to increase efficiency.

If these challenges are addressed, and the recommendations in this report embraced, much could be achieved within a 10-year period.

*Scaling Up, Saving Lives* sets out a 10-year plan for scaling up education and training of health workers (see page 61). Adopting and implementing such a plan requires sustained political commitment and financial support over a long period, as well as innovative thinking and practice. Success will depend

on national leadership as well as international support and cooperation. There is also a need for continuous learning – with rapid feedback from countries as they scale up.

The 10 years can begin at any time, but countries yet to begin or in the early stages of planning will need some time before a national scale-up programme can begin in earnest.

A very big increase in dedicated funding will be needed for education and training and for the subsequent employment of extra staff, as well as an economic environment that supports long-term development and recognizes the part that improved health can play in the overall development of a country. *Scaling Up, Saving Lives* sets out likely resource scenarios over a 10-year period from 2005 to 2015, using the African Region as an example, along with the latest available baseline data. Countries will need to develop national costings in line with their country-specific 10-year plans.

The impact of an increased health workforce, particularly one that is focused on community- and mid-level health workers, would already be seen by the MDG milestone of 2015.

But all countries that adopt a 10-year plan, with financial support, could achieve significant results by 2020. With concerted international action, there could no longer be a global shortage of health workers, and we could be living in a world where **everyone has access to a suitably trained and motivated health worker as part of a functioning health system** (see box).

### A vision for 2020

By 2020 every country has sufficient health workers to meet its essential health needs and address major health problems. High-level political and financial commitment in the early 21st century has resolved the human resources for health crisis. In developing countries, multi-skilled teams of health workers are working in both rural and urban communities – addressing the health priorities of the country, effectively tackling the dual burden of communicable and noncommunicable disease. Developed countries also have enough workers to deal with the health needs of their ageing population, with considerable chronic care needs.

In all countries that were in crisis in 2006, strengthened education systems are now using innovative teaching approaches to produce a broad range of workers. Collectively, the workforce has the mix of skills and competencies needed to effectively deliver essential health interventions and improve health outcomes. Most countries have education and training institutions that are linked to regional centres, and form a network of health professional schools. There is cross-country collaboration to enhance research and evaluation of practice, and to facilitate exchange of good practice internationally, as well as innovation. The education and training system focuses on pre-service education, which links to supportive in-service training.

Typically, the national government has an advisory body on health workforce education and training. It brings health, education, labour and finance ministries together with key professional groups and educational leaders, from the public and private sectors. The health strategy they have developed encompasses a long-term health workforce strategy, including education and training. It sets out plans for scaling up the health workforce, including the number of workers needed in different levels and cadres, and monitors progress annually through a series of indicators. A national monitoring system and observatory pull together high-quality information that is used for planning.

### A vision for 2020 continued

The health workforce strategy typically has a realistic and adequate budget from the finance ministry, which incorporates long-term resources for education and training, and for employment of the health workforce. The system is managed by health service managers who have been trained in-country. Donors also contribute long-term, predictable and sustained funding to the central budget or sector-wide approach. Central indicators are used as the basis of a 'single conversation' with donors and development partners for monitoring and accountability.

Health workers are educated and trained in a regulated system with modules taught in the community as well as in the classroom. Teams of health workers are taught together, and have the satisfaction of solving real health challenges. Health service managers are also trained in this system, to help leadership integration and the delivery of services. Government, private and non-state providers of health services contribute to education and training. Academic institutions of higher learning produce competent, qualified health professionals who can meet the needs of the public and private healthcare sector.

All health workers have the opportunity for a career path, whatever their aspirations, learning new skills and competencies in groups, as well as individually. They can qualify as a community health worker in about a year, and help deal with common health problems. With more training, health workers can work towards mid-level qualifications, such as a health officer, or become a higher-level registered nurse, nurse specialist or doctor.

All health workers are well-supervised by qualified staff and have good access to medicines and supplies. They are supported by continuing education based on competencies and delivered through distance learning and information and communication technologies (ICTs). Most also use ICTs to seek advice on specific health problems and to send data into a central observatory for monitoring health trends.

Effective links between health, education and labour ministries help ensure that there is capacity to absorb new health workers into the labour market, so newly qualified workers have jobs to go to. Health workers are highly productive; they know where their job fits into the system and have jobs that pay them well – with good provision for a home, transport and schooling for their children. Many health workers, disaffected in the early 21st century, have returned to work, due to the good employment conditions. Some work abroad – but mainly to gain training experience which they then bring back home. Most health workers regularly take additional training to refresh their skills and knowledge in key areas, relevant to their focus or specialty.

Globally, countries exchange information on their education and training plans and predicted needs for health workers, and are able to negotiate short-term recruitment of health workers from abroad, within the context of an international agreement on migration.

All people have access to essential health services and the MDGs have been met.

## Action by all to achieve the vision of access for all

Governments are responsible for ensuring that their populations have access to healthcare, and for providing a national framework of values, strategies and plans. A concerted long-term effort – at national as well as international level – is needed, with fast global action on a number of fronts, if the shortage of health workers is to be eliminated. As this report illustrates, scale-up programmes have been most successful when there has been clear and sustained political and financial commitment.

In particular, a massive international scale-up effort, supporting countries with severe health-worker shortages, needs many agencies – local, national, regional and international – to be engaged. Just as the problems involve everyone, so do the remedies.

The solutions involve national governments – including presidents and prime ministers as well as ministers of health, education, labour and finance. Developing and developed countries need to be engaged, as do development partners and donors. Public and private sector agencies, in partnership, also have a role to play. Education and training bodies will need to align their curricula to the population's health needs. Finally, the 'vertical' disease-specific programmes and nongovernmental organizations (NGOs), which fund or provide much in-service training in developing countries, need to do more to help strengthen the health workforce. NGOs, and faith-based and private organizations – large providers of healthcare in many countries – also need to contribute to education and training and to be included in scale-up plans.

Education and training are only part of a comprehensive response. *Scaling Up, Saving Lives* recognizes that labour market and employment issues will need to be tackled, but also demonstrates that there is financial capacity to employ far more health workers than are currently being trained. Also, as many countries have highlighted, without addressing broader, interrelated issues, such as working conditions, productivity and migration, any plan to increase the number and capacity of health workers will have limited impact. The findings of this Task Force need to be implemented in the context of the GHWA Agenda for Global Action and alongside the outputs from the other GHWA task forces. Migration, for example, needs to be addressed internationally with agreements on managing its impact and, nationally, by reducing the 'push factors' that lead people to migrate. Human resources and general management need to be improved. Financing and economic aspects need to be fully addressed.

But the crisis is an absolute global shortage of health workers, not just a problem of maldistribution,<sup>6</sup> and educating and training enough health workers needs to be a central part of the global solution.

*At a country level, we are ready. The question is whether the international community is ready to put the money where it's needed.*

**Brian Chituwo,**  
**Minister of Health,**  
**Zambia**

**Figure 3: How scaling up education and training can impact on health outcomes**

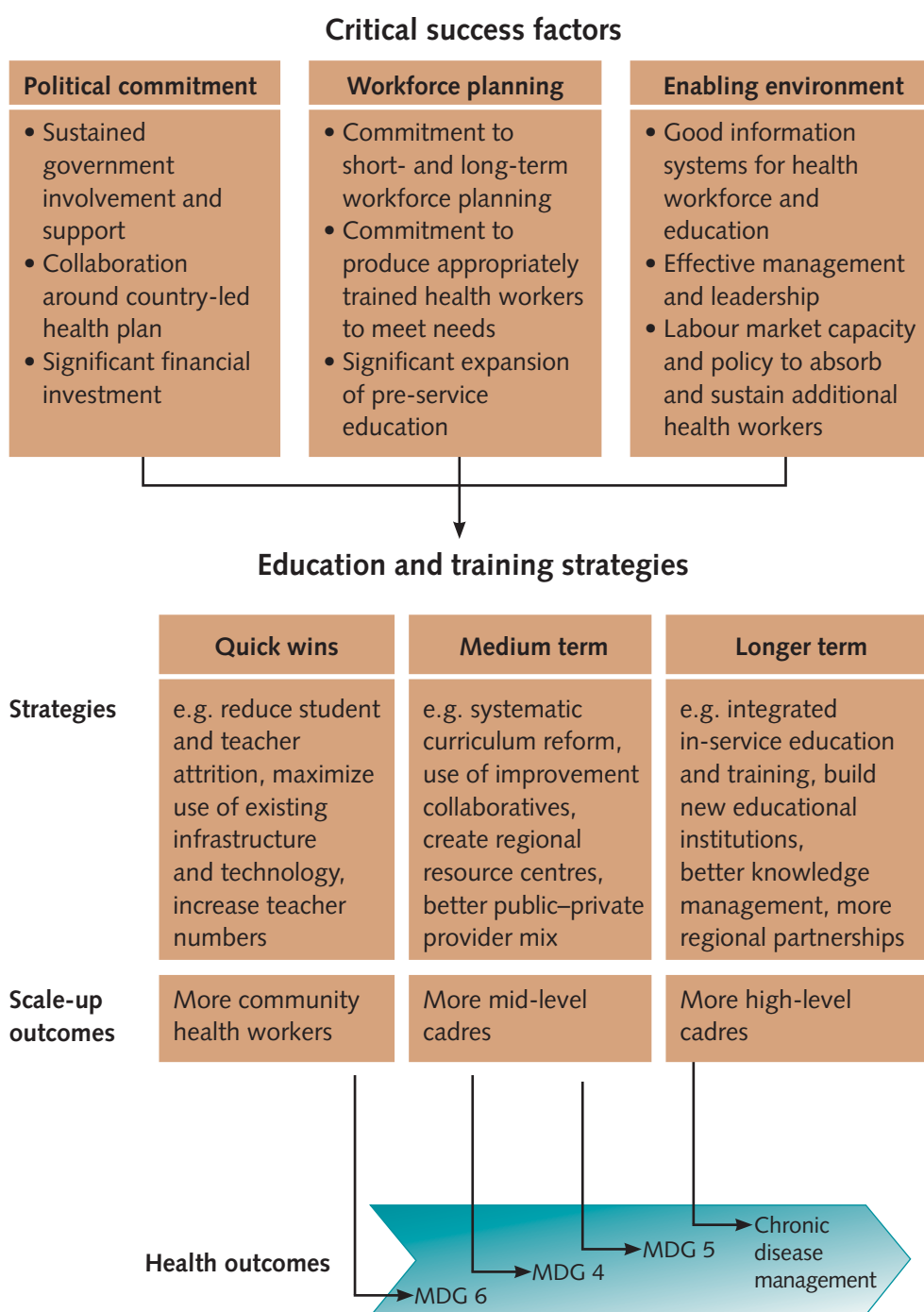


Figure 3 above illustrates the relationship between the critical success factors, strategies, scale-up outcomes and health outcomes, showing how many of the early steps needed to achieve quick wins also lay the groundwork for outcomes over the medium and long term, and can contribute towards achieving the MDGs. Scaling up the health workforce can lead to a measurable impact on health outcomes. For example, the rapid scale-up of large numbers of community health workers, with supervisors, in a well-managed health system can significantly improve access to preventive and curative interventions for child health and communicable diseases (MDGs 4 and 6), and subsequent increases in mid-level cadres, including midwives and midwifery assistants, will also help reduce maternal mortality (MDG 5). Finally, the arrival of increased numbers of high-level cadres will impact on chronic diseases, beyond the benefits achieved through community-level and public health interventions.



## Summary

Concerted action for a massive scale-up of health workers is needed, with the international community fully supporting national leaders in tackling the crisis in their countries.

This chapter sets out:

- the case for investing in health workers, to improve health outcomes and economic development;
- the global consensus on the need to tackle the crisis in human resources for health, and regional and country responses; and
- the needs and opportunities at national and international levels for a more effective and coordinated response to scaling up the production of health workers.

There has been increased international focus on the need for scale-up since the publication of the Joint Learning Initiative's report in 2004, the *World Health Report 2006*, and the World Health Assembly Resolution 59.23.

There is now a real opportunity for decisive action.



## The case for investing in health workers

Improving health in a country contributes to economic development and to the welfare of the population.

*Health workers are invisible in the Millennium Development Goals but integral to them.*

**Professor Paul Hunt, UN Special Rapporteur on the Right to Health**

Global health challenges are well recognized. Communicable diseases such as HIV/AIDS, malaria, tuberculosis and the causes of child and maternal deaths are the focus of the health-related Millennium Development Goals (MDGs). At the same time, noncommunicable diseases, notably diabetes, cardiovascular disease and cancer, represent a substantial and growing burden in the developing world.<sup>1</sup> Cardiovascular disease, for example, is the leading cause of death in all regions other than sub-Saharan Africa.<sup>2</sup> This dual burden threatens to overwhelm healthcare systems across the world and in developing countries in particular.

Health, spending on healthcare, economic growth and poverty alleviation are closely related.<sup>3,4</sup> Good health, nutrition, reproductive health policies and effective health services are critical links in the chain that allows countries to break out of the vicious circle of poverty, high birth rate, poor health and low economic growth,<sup>5</sup> replacing it with a virtuous circle of greater productivity, low fertility, better health and rising incomes.<sup>6,7,8</sup>

As the Commission on Macroeconomics and Health highlighted in 2001, there is a strong case for investing in health to accelerate economic development and help alleviate poverty. The Commission's report showed a clear correlation between countries' gross domestic product (GDP) growth and infant mortality rates (as a proxy for overall disease conditions) – the lower the infant mortality rate, the higher the GDP growth rate.<sup>9</sup>

The Commission also identified a 'basic package' of health services which, if implemented universally at a cost of US\$34 per capita, would reduce child mortality by two-thirds, maternal mortality by three-quarters, and massively reduce the burden of communicable disease – although this does not include the cost of education and training, nor does it address chronic diseases.

There is clear evidence from a number of studies that health workers impact on health outcomes (see figure 4). This includes evidence from research studies, as well as reviews of country-based priority disease programmes.



**Figure 4: Health workers save lives**



Source: WHO, *The World Health Report 2006: Working together for health*.

For example, qualitative evaluations of disease-oriented country programmes have found that the lack of appropriately trained, motivated and managed health workers is one of the major bottlenecks in implementing evidence-based health interventions to improve maternal and child health, and to address HIV/AIDS, malaria and tuberculosis.<sup>10,11</sup>

Alongside poor infrastructure, inadequate drugs and supply systems and weak information systems, severe shortages of health workers are one of the main health-system constraints to achieving the health-related MDGs.<sup>12</sup> To meet the under-five child mortality targets of MDG 4, implementation reviews have recommended increasing the numbers of health workers and making better use of existing workers.<sup>13,14</sup>

These findings are supported by analyses in developed and developing countries which show a positive correlation between the availability of health workers and improved health outcomes, as well as increased coverage of essential health interventions. Research shows, for example, that the density of health workers is significant in accounting for variations in rates of maternal mortality, infant mortality, under-five mortality and immunization rates across countries.<sup>15,16,17,18</sup>

Health workers are not just needed to deliver health services. In many countries, there is a shortage of scientists and technicians, management, policy and logistics professionals and, particularly, staff working in public health. For health workers to be productive, they need to be part of a well-functioning health system.<sup>19</sup>

The social determinants of health, such as education, income and employment, water, food and the environment, contribute to all major diseases, and tackling these will have a large impact on health outcomes. However, synergies with the provision of healthcare, especially when it is focused on public health and primary care, cannot be overestimated.<sup>20</sup>

*A paradigm change is taking place. Health is no longer seen simply as a consequence of development but as an important contributor to it.*

**Michel Kazatchkine, the Global Fund to Fight AIDS, Tuberculosis and Malaria**

It would cost US\$34 per capita to provide a basic package of health services, and an extra US\$10 per capita to train an adequate number of health workers to provide these services.

Addressing cultural issues, including gender and the role of women in health and development, is also important. Discrimination at school age can mean that girls have less chance of gaining a full education, and consequently less chance of achieving highly valued positions, including that of health professional. Women often play a crucial role in providing healthcare in the community and family, but it is important that voluntary and lower-skilled jobs are not perceived as the only roles for women in the health system.<sup>21</sup>

## **Global consensus: a real opportunity for positive change**

Countries, regions and partners have started to respond to the calls for urgent global action that have been made by the Joint Learning Initiative, World Health Organization (WHO) and World Health Assembly, among others.<sup>22, 23</sup>

### **Developing countries respond**

In 2006 and 2007, these calls for global action were echoed around the world, with a series of regional resolutions and strategies to address human resources for health. These include the Toronto Call to Action for a Decade of Human Resources in Health in the Americas,<sup>24</sup> the Pan American Health Organization's Resolution for a Regional Plan of Action for Human Resources for Health and explicit regional goals,<sup>25</sup> the Western Pacific Regional Human Resources for Health Strategy,<sup>26</sup> the Dhaka Declaration by Health Ministers in the WHO South East Asia Region,<sup>27</sup> the WHO European Regional Resolution on Health Workforce Policies,<sup>28</sup> the Johannesburg Declaration of the African Union Conference of Health Ministers,<sup>29</sup> the Douala Plan of Action.<sup>30</sup>

In Africa, where the problems are most severe, African Union heads of state have endorsed the *Africa Health Strategy: 2007–2015*,<sup>31</sup> which identifies and addresses weak and under-resourced health services as a root cause of the high disease burden – including the shortage of appropriately educated, trained and motivated health workers. They have committed to preparing interministerial, costed development and deployment plans to address the crisis in the health workforce – in line with the Abuja target to commit 15% of the annual national budget to the health sector.

Many countries are already actively responding to the challenges. Most countries already have a health-sector plan, and many of the 57 countries in crisis are placing a focus on human resources for health. The Task Force review has identified some examples of large-scale education and training programmes currently being implemented (see chapter 3).

Some countries have plans they are just beginning to implement, or for which they are seeking funds. Other countries are at early planning stages in developing their health workforce strategies. Still others have ambitious plans and goals, but implementation is faltering for reasons that include disparity between goals and funding, a lack of country ownership and difficulties in coordinating the actions of different players. In addition, the traditional reluctance of donors to make long-term financial commitments and to fund recurring costs, such as salaries, has been a key limiting factor, although there are policy shifts on this issue.<sup>32</sup>

## Donors and development partners

Donors and development partners have collectively recognized the need to address the shortage of health workers. The World Bank's health strategy, published in 2007,<sup>33</sup> focuses on strengthening health systems, including sufficient health workers. At the 2007 Summit in Germany, G8 leaders highlighted a focus on human resources for health as part of the Scaling Up for Better Health process.<sup>34</sup> In its G8 Presidency, Japan has continued this focus on issues related to health systems and human resources for health.

The European Union Programme of Action, agreed in December 2006, stresses the importance of long-term, predictable financing to address the health workforce crisis as part of international efforts, and commits Member States to mobilize funding at a global level.<sup>35</sup>

The global health initiatives such as the GAVI Alliance (GAVI), the Global Fund to Fight AIDS, Tuberculosis and Malaria (the Global Fund) and the President's Emergency Plan for AIDS Relief (PEPFAR) have recently started to designate some funds to help overall strengthening of health systems.

More widely, the Global Campaign for the Health Millennium Development Goals<sup>36</sup> represents a concrete step by multilateral agencies, bilateral development partners and other partners to apply the Paris Declaration principles on aid effectiveness to the health sector. The focus on a coordinated response and on aligning and harmonizing financial and technical assistance with national and regional priorities and plans to strengthen health systems is a clear sign that scaling up the production of health workers will receive the attention it deserves (see chapter 6).

*Now is the time for action, we do not need to keep reiterating the problems.*

**Peter Ndumbe,**  
University of Buea,  
Cameroon

### Increasing demand for health workers in developed countries

In developed countries, pressure on the health workforce will continue to increase with a shifting mix of disease burdens, technological changes, ageing populations and an ageing health workforce. Norway, for example, is anticipating sharp increases in the need for nursing and care services, with shortages of between 6,000 and 37,000 auxiliary nurses and care workers anticipated by 2025, and a shortage of up to 62,000 doctors, nurses, care workers and physiotherapists in total, under different economic scenarios.<sup>37</sup>

In the United States, the Association of American Medical Colleges has recommended that by 2015 medical schools increase their enrolments by 30%, or 5,000 students annually.<sup>38</sup> In the United Kingdom, the 2002 Wanless Report estimated that by 2022, training places for doctors would need to be expanded by a further 50%, those for nurses and midwives by 7% and those for other qualified staff by 80%.<sup>39</sup>

## Seizing the opportunity

There are more than 40 bilateral donors, 26 agencies, 20 global regional funds and 90 initiatives in health. Global aid for health increased from US\$6 billion in 2000 to US\$14 billion in 2005. Although some of this investment is now being channelled to building health systems and the health workforce, with some funds specifically allocated to scaling up education and training, it is nowhere near sufficient.

Therefore, as positive as these developments are, it is important to note that, overall, the global scale-up of health workers to date has been relatively small in light of the challenges and is limited by a combination of capacity and resources.

As this chapter has described, the new global consensus on the need to tackle the health workforce crisis provides the opportunity for action. The rest of the chapters in *Scaling Up, Saving Lives* set out in detail the actions needed in relation to educating and training health workers, how countries can achieve a large-scale increase in their overall workforce, and how the international community can assist countries implementing scale-up programmes.

## Summary

Scaling up the health workforce is a challenge and an opportunity for government leaders. The Task Force has identified nine common critical success factors that need to be in place to scale up the education and training of health workers. These are drawn from the lessons learnt in countries that have scale-up programmes, including a detailed look at 10 countries – Bangladesh, Brazil, Ethiopia, Ghana, India, Kenya, Malawi, Pakistan, the United Republic of Tanzania and Venezuela. The critical success factors fall into three groups and underlie all the proposals in *Scaling Up, Saving Lives*:

### Political commitment and good governance

1. Political commitment, including sustained government involvement and support
2. Collaboration around a country-led health plan
3. Significant financial investment

### Workforce planning

4. Commitment to short-term and long-term health workforce planning
5. Commitment to produce appropriately trained health workers to meet health needs
6. Significant expansion of pre-service education programmes

### Enabling environment

7. Good information systems for health workforce and education, with monitoring and evaluation
8. Effective management and leadership
9. Labour market capacity and policy to absorb and sustain an increase in health workers

Together, these interrelated critical success factors provide a foundation to help guide national governments as they develop their unique national road maps to scale up education and training of the health workforce. Immediate action can be taken in all areas – where this isn't already under way – provided that there is sufficient national and international commitment.

In countries that have been successful, the process is owned by political leaders – usually the President and the Minister of Health, as well as ministers of education, labour and finance. Such engagement, with committed finance, is often the single most important determinant of success. Significant long-term financial investment, from national governments but usually also with the backing of donors, in education and training as well as subsequent employment, have been crucial. The most successful scale-up plans are long-term, flexible and aligned with broader development and poverty reduction plans.

One important issue to emerge from this work is the need for countries to share their experiences in scaling up through collaborative 'real-time' learning, and for longer-term evaluation and research, to improve future policy and practice. This chapter discusses each success factor in more detail and uses examples from the case studies to illustrate key points (see case study summaries on page 101 and [www.ghwa.org](http://www.ghwa.org)).



## Political commitment and good governance

### 1. Political commitment, including sustained government involvement and support

Political commitment, government leadership and national ownership have all been critical in countries that have achieved, or are implementing, a large-scale increase in their overall health workforce.

Governments have led the process, from priority setting and planning to implementation and evaluation of progress, and from securing adequate financial investment to sustaining momentum. Political commitment at the highest level – from presidents and prime ministers – has been found to drive the process forward, secure adequate financial investment and sustain momentum. This commitment also needs to be long-term and sustained, as earlier country programmes have shown.

Among the first successful case study countries were Brazil and Pakistan, where national leaders continue to support scale-up programmes launched by their predecessors during the early 1990s.

#### Brazil

Political commitment to scaling up health worker education and training in Brazil extends to the presidential level and has been sustained through leadership changes. For example, the PROFAE programme to train nurse auxiliaries and technical staff was launched in 2000 under President Cardoso. It and its follow-up programme, PROFAPS (2005–09), have been sustained under President Lula da Silva. There has been strong engagement from the ministries of both health and education, with the former leading cross-government cooperation on health workforce issues.<sup>1</sup>

#### Pakistan

High-level commitment has been critical to sustaining the Lady Health Worker Programme since it was launched by the Ministry of Health in 1994. It is an integral part of the Prime Minister's Programme for Family Planning and Primary Health Care.<sup>2</sup>

Many other countries are also benefiting from high-level presidential or prime ministerial leadership and support of scale-up efforts. These include Ethiopia, Ghana, India, the United Republic of Tanzania and Venezuela. In 2005, for example, India's Prime Minister launched the National Rural Health Mission, which aims to increase access to healthcare services by addressing specifically the critical shortages of health workers in rural areas.

In the majority of cases, the Ministry of Health leads the development and implementation of plans on human resources for health, and any plan to scale up education and training of health workers needs to support and align with this, as well as broader national health plans. The relationship between the ministries of health and education is especially important, because they usually both have responsibilities for the education and training of the health workforce. A lack of sufficient communication between them limits the ability



of the education sector to ensure an adequate supply of health workers to meet healthcare needs.

Cross-government commitment and coordination between the ministries of education, labour and finance are facilitated in successful countries, and high-level cross-government committees help to ensure synergy with other government priority strategies.

### **Islamic Republic of Iran**

In 1985, the government of the Islamic Republic of Iran established the Ministry of Health and Medical Education with the aims of improving the country's development of its health workforce and better matching health education to the population's health needs. The ministry is responsible for all aspects of planning, leadership, supervision and evaluation of health services, including the education and training of health workers.<sup>3</sup>

### **Brazil**

In 2007, a Presidential Decree led to the establishment of the Inter-Ministerial Commission on Health Professions Education and the government has developed a regulatory framework to support programmes for scaling up education and training.<sup>1</sup>

The political motivation for different government departments committing human resources to health plans and providing resources to scale up production and employment of healthcare workers varies. In Ghana, for example, health workers are seen as part of the vision to lead the country to middle-income status. Similarly, in the United Republic of Tanzania, the focus on developing primary health care is set in the context of the National Strategy for Growth and Reduction of Poverty. In Venezuela, health workers are seen as a crucial component of providing the population with their constitutional right to health.

High-level political commitment is needed in particular to secure long-term financial support from international donors. Post-conflict countries warrant special mention because the fledgling government is fragile and the Head of State and Minister of Health need the support of international organizations involved in rebuilding the country to make both the production and retention of health workers a priority.

## **2. Collaboration around a country-led health plan**

Efforts to address the health workforce crisis need to encourage all relevant stakeholders in government, private and not-for-profit sectors to work together and coordinate their activities around the national health plan, and more specifically the national human resources for health plan. They include education, labour and finance ministries, professional associations, education and training institutions, development partners, all providers of health services and civil society. National plans that include a mechanism for outlining key player involvement can result in increased ownership and responsibility for the implementation of scale-up activities. The case studies show different ways that countries can engage with stakeholders from early planning through to implementation and evaluation.

Brazil, for example, has successfully engaged stakeholders and uses an open-bidding process to involve the private sector in education and training. India has based its plans on the three pillars of decentralized planning, community ownership and intersectoral collaboration, with wide stakeholder consultation achieved. In Venezuela, Barrio Adentro is being led by the ministries of health and education and the former has established a National Health Committee Coordinating Office to help guide joint implementation.

Establishing a national coordinating mechanism such as a cross-sector steering group or a national health workforce agency can ensure an integrated response, provided it has high-level government leadership and support.

This steering and coordinating role is ideally played by the human resources for health unit in the Ministry of Health. Where they are well-supported, these units can achieve a benchmark of good governance. Countries in Latin America, for example, are committed to strengthening and further expanding these dedicated teams within ministries of health to advance the development of the health workforce.<sup>4</sup> However, many countries do not have a human resources for health unit, while the units in other countries are not well equipped or supported. Further capacity building in this area is needed.<sup>5</sup>

Mechanisms to coordinate development partners' activities already exist in many low- and middle-income countries. In some, the human resources component of the national health plan is managed through a sector-wide approach. In recent years, donor countries have acknowledged the need to align their programmes with – and pledge financial support to – country-led national health plans.<sup>6,7,8</sup>

In Mozambique, for example, a sector-wide approach has been implemented since 2000. The health sector plan has been endorsed by all development partners, a code of conduct signed outlining rules of engagement with the Ministry of Health, and a set of mechanisms put in place to manage working arrangements, review processes and financing. The fund of pooled donor resources is used to finance health staff positions in several provinces.<sup>9</sup>

### Malawi

The Emergency Human Resources Programme in Malawi was developed and is being implemented through collaboration between a wide range of stakeholders. The Ministry of Health and its coordinating agencies (e.g. Health Services Commission and Human Resources Advisory Committee) are leading, working closely with professional associations and the Church Health Association of Malawi, which provides 50% of health services and is a key player. Efforts to improve engagement with nongovernmental organizations (NGOs) and civil society organizations are under way, and there is a strong sector-wide approach that coordinates development partner involvement.<sup>10</sup>



### United Republic of Tanzania

In the United Republic of Tanzania, the Ministry of Health and Social Welfare collaborates and consults with the many players involved in health workforce planning and delivery. These include other government departments, training institutions, professional bodies, NGOs, the private sector, development partners and health workers themselves. A sector-wide approach is in place, but some human resources for health activities take place outside it, and coordination is a challenge. A new strategic plan, to be published in 2008, is intended to provide a framework and structure for all activities in this area.<sup>11</sup>

In some countries, funding from disease-specific global health programmes such as the President's Emergency Plan for AIDS Relief (PEPFAR), the Global Fund and the GAVI Alliance constitutes a large proportion of the country's total health budget, and can exceed the government's direct contribution. Moreover, external funds often arrive earmarked by donors for disease-specific activities. In Zambia, for example, only 10% of donor funds in 2007 went towards overall strengthening of the health system, with the remaining 90% going to priority disease programmes.<sup>12</sup> This can lead to the unintended consequences of an overspecialized workforce and reduced staff for general healthcare facilities. The vertical funds have recognized the impact of their focused capacity-building programmes and are addressing the problem. Both the GAVI Alliance and the Global Fund encourage proposals to specifically include action to strengthen national health systems.

Even so, strong leadership from the Minister of Health and the backing of national leaders are needed to ensure that donor-led initiatives – both large and small – support national health goals and the ministry's objectives.

With various stakeholders responsible for different elements of a human resources for health plan, ongoing collaboration on implementation is also important. For example, all actors need to have clear remits to avoid unnecessary duplication of activities. In particular, coordination of government, nongovernment and private sectors is often needed to ensure that education and training and health service provision meet national goals.

### 3. Significant financial investment

Predictable and long-term financing is critical to the successful implementation and sustainability of programmes to scale up education and training of health workers. Government leaders have to make the case in the international arena, health ministers have to convince finance ministers, and finance ministers have to secure commitments from development partners.

An increase in funds is required not only to employ enough health workers, but also to invest in education and training infrastructure (facilities, materials and faculty), all of which are frequently insufficient or need to be created. Adequate, long-term funding is needed to support budgets for health workforce education and training in both the Ministry of Education and the Ministry of Health. In many countries, the Ministry of Education is responsible for producing physicians, pharmacists and registered nurses (high-level cadres),

while the Ministry of Health is responsible for training mid-level cadres and community-based health workers. Only a high-level political decision will protect such funds from budget cuts during times of economic downturn or when there are competing demands from other sectors.

Most developing countries could spend more on health in general, and on education and training in particular. The 2001 Abuja Declaration called on countries to target the allocation of at least 15% of the annual national budget to health.<sup>13</sup> Few countries in the African Region have managed to meet this target.

Even if the Abuja target was met, prevailing economic conditions in the countries most affected by the health worker crisis suggest that public funds alone will be insufficient to support major efforts to accelerate production of health workers (see chapter 7). In these situations, innovative financing mechanisms are needed, including investments from international donors and the private sector.

Countries have been most successful when combining government funds with additional assistance from development partners or other sources. These additional funds may be used to fill gaps in plans or to allow measures to be taken that would not be possible otherwise (for example, salary top-ups in Malawi). A desire to gradually increase the government's financial commitment over the long term is common. For example, Ethiopia's Ministry of Health is looking to increase government per capita expenditure on health from US\$5.6 to US\$9.6, and plans have been modelled based on three financial resource scenarios.<sup>14</sup> In India, the current level of funding for the National Rural Health Mission is 0.9% of gross domestic product (GDP) and the intention is to increase allocation to 2%.<sup>15</sup> In addition, a sector-wide approach mechanism is being used to pool external assistance, and the Public Health Foundation of India is specifically focusing on the use of public-private partnerships.

There is often great uncertainty regarding the availability of resources, especially from external sources. To better deal with financial uncertainties, the African Union recommends that countries consider three possible resource availability scenarios: one at current or low growth levels, a second anticipating greater national commitment and delivery of international promises and a third for the resources required to make the desired impact – and then to set targets commensurate with these resources.

### Malawi

In 2004 the government of Malawi, with support from a sector-wide approach and other development partners, launched the US\$198.8 million, six-year Emergency Human Resources Programme. A major challenge was ensuring that the programme, and particularly proposals for salary top-ups, were sensitive to the country's tight macroeconomic situation. The government committed US\$41.7 million and the remaining US\$157.1 million was met by the United Kingdom's Department for International Development (DFID) (US\$100 million), the Global Fund (US\$40 million) and sector-wide approach partners (US\$30 million). This total of US\$170 million allows for some donor slippage.<sup>10</sup>

### **Brazil**

The government spent US\$370 million on PROFAE from 2000 to 2004, half of which (US\$158 million) was loaned by the Inter-American Development Bank. Increases in tax revenue meant that the follow-up programme, PROFAPS (2005–09), is being funded solely by the government. The government has also budgeted US\$150 million for PRO-SAUDE between 2006 and 2009. The World Bank is providing additional funds through a sector-wide approach mechanism to support the Family Health Programme more broadly.<sup>1</sup>

### **Bangladesh**

When an emergency obstetric care training programme was started in Bangladesh in 2000, the government bore the cost of salaries (for trainers, participants and government project personnel) along with the cost of improving training facility infrastructure and related logistics. But due to limited government funds, the education and training activities were primarily funded by development partners and NGOs. The sustainability of the programme became an issue when external funding decreased in 2004. A cost extension made it possible to continue activities past the original end date of mid-2004, but at a greatly reduced level.<sup>16</sup>

In Zambia, only 10% of donor funds in 2007 went towards overall strengthening of the health system, with the remaining 90% going to priority disease programmes.

Private-sector investment in education is needed to further expand the available funds for scaling up education and training. Private colleges and universities represent 25 to 30% of global higher education enrolments, although there are significant differences across countries and regions. While private higher education represents large enrolments in East Asia and Latin America, they are smaller in Western Europe and the Middle East.<sup>17</sup>

In many countries, more than half of healthcare services (50 to 80%) are provided by nongovernment sectors. These providers could have a stronger role in educating and training the health workers they will later employ. In Africa, most governments limit private involvement in medical training, due partly to historical unease regarding quality. However, with strong government oversight through quality assurance mechanisms, the private sector offers a real opportunity for expanding training capacity. For example, 85% of graduates from the private L'Institut Santé Services in Senegal go on to work in the public health system. In the United Republic of Tanzania, the non-profit institution Hubert Kairuki Memorial University, in Dar es Salaam, offers professional medical degrees and has increased its enrolment six-fold since its foundation in 1997. Lessons regarding quality assurance can be learnt from Thailand, where a standard licensing exam for doctors is taken by students from all public and private institutions.<sup>18</sup>

Endowment funds are another, less common, form of private investment that, if managed well, can contribute to institutional sustainability and foster collaboration between students, faculty and administrators throughout the world.

## Workforce planning

### 4. Commitment to short-term and long-term health workforce planning

Short-term and long-term workforce planning should include plans for the scaling up of education and training. Good workforce plans are grounded in an assessment of financial resources and the capacity of the labour market to absorb health workers, and they are complemented by strategies for management and retention (see box for a template for a national health workforce plan). The 10 case study countries have taken a variety of approaches to workforce planning and have adopted a wide range of timescales. All have focused their human resources for health plans on population health needs, however, and many have demonstrated their commitment by including long-term as well as short-term objectives.

Most countries undertake some form of long-term forecasting and planning but, as this is often fragmented, limited to a small number of health professions and based on weak data, it can be inaccurate and lead to shortages or overproduction.<sup>19,20</sup> In addition, in both developed and developing countries, there is a tendency for forecasts to be supply-driven and based on the existing structure of the workforce, with the assumption that it will remain the same over time. However, existing staffing mix and allocation of tasks are not necessarily the most efficient, so this assumption fails to take advantage of opportunities for improving productivity by shifting skill mix and substituting between roles. Such status quo assumptions also make it difficult to introduce new roles, technologies and practices and to implement incentives to reduce attrition and migration, for example.<sup>20</sup> Plans for scaling up education and training need to reflect this.

Planning has been shaped in many cases by the aim of reaching the Millennium Development Goals or the implementation of an 'essential health package'.

## Components of a national human resources for health plan

### Vision and mission

To set out desired health workforce results: e.g. to ensure adequate numbers of equitably distributed and appropriately skilled and motivated health workers.

### Purpose and objectives

- To consider the healthcare needs and health sector workforce needed in the short-, medium- and long-term.
- To specify the growth and development of different health worker cadres through education and training and to set targets.
- To identify the activities and policies needed to support future health workforce development.

### Guiding principles

Some plans outline core guiding principles in government commitment to health workforce development: e.g. a focus on the human resources required to reduce the burden of disease in a cost-effective manner.

### Key elements

*Situational analysis of health workforce numbers, distribution and gaps; training capacity; and priority health needs, including:* numbers and types of health worker, health service level, staffing and facility ratios and public–private mix; numbers, types, distribution and capacity of training institutions, and attrition rates; and health status analysis to identify needs and goals.

*Current workforce challenges:* identification, with stakeholders, of critical health workforce challenges in production, retention, productivity and performance of health workers.

*Projection of future requirements:* based on health needs, and addressing demographic changes and drop-out and attrition rates from schools and workforce. Feasibility analysis includes capacity to implement, economic and fiscal sustainability and ability of the labour market to absorb new graduates.

*Proposed strategies and policy options for meeting future requirements:* policy options, including wider government policy, to address problem areas as well as short-, medium- and long-term strategies.

*Economic analysis and fiscal sustainability:* 'costing' of plan, including capital costs (e.g. education institutions and health facilities), and recurrent costs (training costs, health worker salaries, etc.). Fiscal sustainability includes predicted economic growth, potential increase in health budget and ratio of wages (or personnel emoluments) versus GDP.

*Implementation, monitoring and evaluation:* implementation of plan against key milestones and timescales. Plans are 'live' documents to be regularly updated. Progress is monitored within a framework of benchmarks and indicators.

**Note:** Guidelines on how to develop a human resources for health plan are available at: [www.afro.who.int/hrh-observatory/documentcentre/policies\\_plans\\_guidelines.pdf](http://www.afro.who.int/hrh-observatory/documentcentre/policies_plans_guidelines.pdf)

Countries such as Ethiopia have a long-term vision with a phased approach based on country priorities. Commonly, as in Uganda, skills and distribution of current staff, education and training capacity and projected supply are assessed and compared with future needs. Demographic characteristics, disease burden, predicted loss from the system, productivity and desired staff-to-population ratios are all taken into account. Workforce planning and decisions on types of health workers should be based on strong analysis and data, although data are not always available because few countries have comprehensive labour censuses.

Several countries have acknowledged a need to strengthen their technical capacity to carry out health workforce forecasting and modelling. The use of external consultants to help develop strategic country health workforce plans needs to be combined with local capacity building, otherwise there is potential for ownership and subsequent implementation issues within the Ministry of Health. Plans on paper need to represent the genuine objectives of the government and be agreed upon and understood by all key stakeholders.

In some cases, such as that of Pakistan, a focus on a particular priority cadre, recognized as needed to meet a particular gap in service provision, has been sustained over many years, and maintained through the lifespan of consecutive policies. In others, such as Brazil and Ethiopia, scale-up has begun with one priority cadre and then broadened to include others later.

As other critical success factors highlight, it is important that the development (and implementation) of short-term and long-term workforce plans is led by a dedicated team, and that these plans are consistent with the overall national health strategy, aligned with other government plans and developed with stakeholders. Proper investment in the consultation process has been shown to be important.

### **Malawi**

During Malawi's planning process, a review of the existing health workforce demonstrated acute shortages across all cadres. As a result, a comprehensive approach was taken. A conscious decision was made to implement activities with a short-term impact, thus buying time for the effects of expanded training to be felt. Short-term plans included the maximizing of existing training capacity, recruiting overseas staff and recruiting retired staff and others who had left the health service. Over the longer-term, education and training of 11 priority cadres is being implemented using a tutor-incentive scheme to encourage people to take up these positions. The ultimate goal is implementation of an essential health package, with an initial target to reach Tanzanian staffing levels.<sup>10</sup>



## Venezuela

Mission Barrio Adentro is a social welfare programme aimed at providing free, quality healthcare as a human right guaranteed to all Venezuelan citizens. The ultimate goal is to have one physician (called a 'comprehensive community physician') for every 1,250 to 2,500 inhabitants. Given that it would take five to six years before the first qualified graduates entered the workforce and about 10 years to produce the required 20,000 graduates, defined short- and long-term plans have been developed to achieve the goal. As part of the short-term plan, an agreement with Cuba has led to 20,000 Cuban physicians working in Venezuela. Over time, new Venezuelan graduates, recruited from the communities in need and trained through community-oriented programmes, are replacing the Cuban physicians.<sup>21</sup>

## 5. Commitment to produce appropriately trained health workers to meet health needs

In all country case studies, the policy decision underlying scale-up programmes was taken to improve health outcomes, particularly by increasing the access of poor and rural populations to adequately trained health workers.

The concept of an 'essential health package',<sup>22</sup> focusing on a country's major burden of disease and tailoring activities to areas of greatest need, is shaping planning in many countries including Kenya, Malawi, Nigeria and Uganda, and is recommended in the Africa Health Strategy: 2007–2015.<sup>23</sup>

In this context, 'appropriately trained' has three meanings: first, education and training programmes reflect country health needs; second, the mix of skills and competencies among the health workforce most likely to have the greatest impact on health outcomes; and third, training for reach results in a more appropriate distribution of health workers across geographical areas – rural and poor areas in particular (see chapter 4).

Many of the case study countries are carefully tailoring their skill mix, and health worker production, to meet health needs. Often this involves an initial focus on community- and mid-level workers to meet the high burden of disease at the primary level of the health system, and improve healthcare access in rural and deprived communities. Thailand followed this path from the 1970s to the 1990s, rapidly training community- and mid-level personnel, while gradually expanding the production of higher-level professionals.<sup>3</sup>

In Ethiopia, India and Pakistan this has led to the creation of new cadres. India has also involved the community in health service provision and identifying their own needs. India's traditional health practitioners are being brought into the mainstream health system, and a new generation of village-level social activists (Ashas) are being trained.

In the Islamic Republic of Iran, rural health workers have been selected successfully from local populations and trained locally in the context in which they will practise, to ensure they can respond to community health needs. Similarly, efforts may be directed at addressing a specific cause of mortality. For example, the high rate of maternal mortality in Bangladesh has led to a focus on strengthening training for emergency obstetric care provision.

### **Ethiopia**

The Ethiopian Ministry of Health has estimated that 60 to 80% of the country's health problems are due to largely preventable communicable diseases such as malaria, pneumonia and tuberculosis. The Health Extension Program launched in 2004 aims to address this through an innovative community-based approach focusing on prevention and the creation of a healthy environment. With 85% of a population of 77.3 million living in rural areas, it is difficult to ensure effective coverage of essential healthcare interventions. To help, a new cadre of health extension workers (HEWs), with defined roles delivering essential interventions from specific health posts, has been introduced. After completing a one-year course, HEWs return to work in the communities from which they were recruited. The goal is to train 33,000 HEWs by 2009 – two for every village in the country. This expansion is being supplemented by an increase in training across the board, including health officers and doctors.<sup>14</sup>

### **Ghana**

The Ministry of Health in Ghana has identified as a key priority the need to train more mid-level health workers and make a long-term shift of resources into this area. This is based on experience on the ground and evidence from elsewhere in sub-Saharan Africa demonstrating these workers' cost-effectiveness, distribution and efficiency. Doctors are essential for supervision, but experience indicates that they resist rural postings. Much can be achieved in Ghana using mid-level workers to serve more remote areas. A system of general training for medical assistants that takes about three years with a subsequent two-year specialist training option offering a chance of career progression is being considered. The intention is to double the training of mid-level workers in two years.<sup>24</sup>

## **6. Significant expansion of pre-service education programmes**

All countries that have successfully scaled up have invested in a significant expansion in pre-service education and training programmes, as discussed in detail in chapter 5.

Components of an effective education and training programme include: an adequate supply of eligible applicants; sufficient production capacity in education institutions, including infrastructure, equipment and faculty; available resources to increase the capacity and quality of health worker education; the institutional ability to retain students; a regulatory framework; and links with the health system, with the capacity to employ newly qualified health workers.

Countries have successfully addressed these factors in different ways. The number of students has been increased by boosting qualified applicants, increasing incentives for students and reducing attrition/drop-out rates. Development of faculty and clinical trainers can result in increased teaching staff and teaching capacity. And fully using and revitalizing existing buildings, as well as securing private-sector partnerships, can help boost institutional capacity.



In Ghana and the United Republic of Tanzania, the initial phase for existing cadres is typically to increase intakes in existing institutions. This has involved implementing policies to reduce attrition, increasing teaching staff, making use of distance-learning technology and adjunct faculty, and utilising additional existing health facilities for practical attachments and training.

Kenya has implemented an innovative e-learning programme through computer-based training in hospitals, nursing colleges and health centres, along with on-the-job mentoring to upgrade enrolled nurses to registered status. Over the longer-term, education and training institutions not normally used for health workers can also be adapted and new institutions can be created. In Ethiopia, for example, existing vocational training centres and hospitals are being used to educate and train health extension workers.<sup>25</sup>

In addition to the level of professional appeal, the availability of qualified applicants is influenced by population size and educational attainment. Eligibility criteria have to be set at realistic levels, and factors other than educational attainment are usually considered during the application process. In some countries this has been a constraint. For example, in some areas of Pakistan, entry-level qualifications for the Lady Health Worker Programme were initially too high, resulting in few or no candidates.

Academic training programmes need to attract potential applicants, and in some cases incentive packages, including scholarships, are used. In many African countries, the state finances a large proportion of the cost of each student. Another critical issue in expanding pre-service education is the availability and quality of capacity, including facilities, materials and teachers.

### **Ghana**

Investment is being made in Ghana to expand training infrastructures and tutors. More tutors are being trained, and health practitioners are being encouraged to spend some time teaching, with allowances provided for books and research. Accredited schools are being used for nurse- and technical-level training, under the supervision of regulatory bodies. New training sites are planned with the ultimate goal of all hospitals taking on some training function.<sup>24</sup>

Provided it is strategically integrated into the national plan, in-service training also serves important functions in the rapid scale-up of the health workforce. This can include, for example, orienting health workers towards existing national health priorities and bringing staff back into the health workforce. However, in-service training needs to be linked to pre-service faculties and involve elements of institution building, as far as possible, in order to create a sustainable system of continuing education.

## Enabling environment

### 7. Good information systems for health workforce and education, with monitoring and evaluation

Accurate and timely information and data from the health, education and labour sectors can be used to inform the development of workforce plans and policies, to ensure effective monitoring and to evaluate progress. But the reality is that in many countries, including the case study countries, information systems are weak and data are poor.

Most countries are aiming to strengthen health information and data systems as part of their national health plans, often with support from development partners. In the meantime, countries have no choice but to make the best use of available data from censuses, facility-based surveys, research findings and other sources, and to combine this limited information with stakeholder consultation.

As part of the National Rural Health Mission in India, an electronic management information system network linking all districts of the country is being set up. This includes the collection of data related to deployment and management, which will be used to monitor coverage, motivation and competencies of health workers. In Kenya, a detailed implementation timeframe has been laid out in the Health Sector Strategic Plan, with outcomes and indicators for which data will be collected.<sup>26</sup>

#### Malawi

In Malawi, a lack of data when the Emergency Human Resources Programme was designed meant using a variety of sources and drawing heavily on formal and informal consultation. An objective of the programme is to improve the quality of data and establish more robust monitoring and evaluation capacity for human resources for health. This includes the ability to track the training and deployment of health workers.<sup>10</sup>

Information and evidence are needed to inform strategic planning and decision-making for scaling up education and training. Often a single indicator of 'health workers per population' ratio is used for health service planning purposes. The *World Health Report 2006* broadly assessed that countries with fewer than 2.5 healthcare professionals (physicians, nurses and midwives) per 1,000 population fail to achieve adequate coverage rates for selected primary healthcare interventions. But this is a simplistic picture and is not considered to represent a gold standard. It does not reflect a health workforce model with large numbers of community- and mid-level health workers addressing public health and primary care needs, which many countries are adopting. A wider range of data, including distribution and skill mix of workers, attrition rates and capacity of training institutions are needed for successful scale-up programmes (see chapter 8).

In countries where high-quality data are unavailable, baseline information can be estimated from informal sources, including consultation with stakeholders. Tools such as the Human Resources for Health Action Framework developed by WHO and the Capacity Project can be very useful for countries and can help in standardizing approaches across borders.<sup>27</sup>

Once scaling up has begun, timely data and information are needed to monitor and evaluate progress, and facilitate adjustments. Indicators, benchmarks and targets need to be chosen carefully to inform implementation: the wrong indicators may distort implementation. Most low- and middle-income countries lack the resources (human, financial and technical) needed for comprehensive monitoring and evaluation. Even a modest investment could yield significant returns, and will be important for successful scale-up programmes in future (see chapter 8).

Often, what gets measured is what is most likely to get done.

#### **United Republic of Tanzania**

The United Republic of Tanzania's human resources for health strategic plan, to be launched in 2008, includes establishing a monitoring and evaluation framework. Health service managers will be trained in human resource information systems management as well as monitoring and evaluation. Human resource databases will be established at every level, along with national and regional observatories.<sup>11</sup>

#### **Brazil**

Brazil is using quality statistical information and a network of observatories for human resources for health to provide sound information for technical and political decisions. As a result, its programmes have clear targets, including an evaluation component.<sup>1</sup>

### **8. Effective management and leadership**

Scaling-up programmes in education and training have been most successful when they have been overseen by experienced managers and effective leaders. Health managers provide an invisible backbone for health systems; if they are not present in sufficient numbers and with appropriate skills, the system cannot function. They are needed at all levels to support the development and delivery of all aspects of national health plans.

Most countries have acknowledged the need for strengthened management and leadership, especially if the number of health service providers is being increased. There has been a move towards the use of non-clinically trained workers who are competent specifically in management. In Kenya, for example, the health plan includes programmes to develop junior and senior managers. To better manage the changes being promoted by PROFAC, PRO-SAÚDE and the Family Health Programme in Brazil, 100,000 local health managers are being trained to support municipality-level health services.

An essential function of health managers is to ensure an enabling working environment for health workers. This means creating working conditions for health workers to be efficient and effective, while at the same time being satisfied and motivated to do their jobs. A number of African countries are collaborating with the Japan International Cooperation Agency to introduce Total Quality Management (TQM) programmes into national health systems.<sup>28</sup> TQM approaches are managerial tools that can be used to help motivate a productive workforce.

### Ghana

Ghana is placing a particular focus on management and leadership. The Ministry of Health is working with the Global Health Initiative of the World Economic Forum to set up and pilot a unique public-private partnership aimed at addressing management gaps in the national health system, through the lending and sharing of people with relevant private-sector management skills to the public sector. Ghana has also secured support from the World Bank (US\$15 million) for leadership and management training.<sup>29</sup>

### India

In India, the National Rural Health Mission places a strong emphasis on building management skills at all levels of the decentralized framework, and on introducing policies to allow district programme officers and their leadership to train to become professionally qualified public health managers. By the end of 2006 some 700 consultants, including business schools graduates, chartered accountants and information technology experts had been appointed to state- and district-level programme management units.<sup>18</sup>

Successful scale-up programmes have recognized that education and training programmes need to ensure that a critical mass of managers and leaders are available to build the capacity to implement health-sector plans. Some countries have engaged the private sector and some have forged links with business schools for assistance in this area. Training can help alleviate tensions between non-clinician managers who do not necessarily understand healthcare provision and doctors who are not trained in management.

The Latin American Region (Pan American Health Organization) has a clear goal in this area, which is to develop a critical mass of leaders with specialized competencies in the management of human resources planning and policies, at central and district levels.<sup>30</sup>

Factors that inhibit effective management at district level include the absence of a national health management system. Generally speaking, ministries of health lack data on managerial staff and do not have approved competency frameworks with defined skill-sets to guide the training of managers. Furthermore, monitoring of management in peripheral services (districts, hospitals and health centres) does not receive adequate attention in many countries.

This is a global issue: the quality of managers is often highly variable within and among both developed and developing countries. Standards for management skills and competencies do exist in some countries, but are not widely available.

## 9. Labour market capacity and policy to absorb and sustain an increase in health workers

Increasing the number of qualified workers through the massive expansion of pre-service education is an appropriate strategy to address the health workforce crisis; but it is only one part of the solution. Labour markets are shaped by supply and demand, not needs. Demand for health workers, reflected in employment opportunities and salaries for example, tends to be driven by public-sector budgets based on historical levels and political forces.

Education and training capacity is often very regulated and budgets are not responsive to market forces. Wages are not usually flexible and cannot be used to send labour market signals, and even if they were, the length of health-worker training makes the system slow to respond. This situation results in the potential for ongoing shortages that are not simply a manifestation of an absolute shortage of qualified workers overall in the health sector.

When policy interventions are implemented to increase the supply of labour and bring it closer to country needs, care has to be taken to ensure that new workers will encounter a job market that can effectively deploy them. This requires creating an appropriate fiscal space for employment and the finances to do so. Training alone, without corresponding correctives on the demand side, is likely to have no effect – or even to backfire.<sup>31</sup>

Part of the process of health workforce planning in all countries is an assessment of the health labour market. In Ethiopia, the training of HEWs is being combined with a simultaneous expansion of the primary healthcare infrastructure. Thousands of health posts are being built or upgraded to absorb and retain the graduates, and two HEW jobs are being made available at each health post. The cost of salaries, incentive packages and training for these workers is included in the programme budget, and from the start an expansion of the total health worker salary bill was negotiated within government and with international partners.

Effective strategies to retain existing staff and increase productivity are also critical to the long-term success of scale-up programmes. Health workers who are not working can be recruited back into employment in the sector. In Malawi and Kenya utilization of these workers has been a crucial part of the initial response to the health workforce crisis. Measures include improving the attractiveness of jobs; providing opportunities for professional development and in-service training to keep skills up-to-date; and using modest incentives, such as trainee stipends or performance-based rewards to influence individuals' behaviour.

### Malawi

Malawi is using a multipronged approach, recruiting back health workers who have been lost to the system and scaling up the production of 11 priority cadres. Funds have been secured for salary top-ups and incentives for hardship posts to encourage equitable distribution of staff. Packages, including incentives for basic living, are available to improve job satisfaction.<sup>10</sup>

### Kenya

The presence of unemployed health workers or health workers employed in other sectors in Kenya is being used to the advantage of the Emergency Hiring Plan. This is a fast-track hiring, upgrade training and deployment programme. The plan is to redistribute 800 health workers to work in public health facilities on three-year contracts. The Ministry of Health leads the programme, which involves many partners including several bilateral agencies, such as PEPFAR, the Capacity Project, Deloitte and the American Medical and Research Foundation (AMREF). Support includes providing funds for the salaries of these workers.<sup>32</sup>

All country case studies have had to negotiate for increased allocation of government funds and/or secure the financial support of development partners to produce and employ the expanded number of staff in these scale-up programmes. Long-term sustainability, particularly in countries where external donors financially support scaling-up plans, may be uncertain.

A significant role in ensuring sustainability is played by public service commissions, which in many countries determine salary structures and packages for civil servants. At a higher policy level, ensuring sustainability of any policies to develop the health workforce can only work within a framework that strengthens health systems and promotes health across various sectors, including education, water and sanitation.

Given that training new cadres takes time, short-term or temporary solutions to ease the crisis should not be overlooked. Some examples include the use of the diaspora and expatriates, bilateral agreements to provide health workers and redistribution of existing workers via incentives for rural service.

The answer to the health workforce shortage lies in achieving the right balance between production and retention through effective policy, legislation and implementation and with predictable long-term financing.

# What types of health worker should be scaled up?

## 4

### Summary

In this chapter the Task Force examines the evidence related to what types of health workers should be scaled up, paying particular attention to lessons learnt from past attempts by countries and institutions to educate and train more health workers.

- Individual countries have to determine what types of health workers are prioritized, both short- and long-term, in education and training scale-up plans.
- Ministries of health need to take the lead in decisions about the optimal numbers and types of cadres needed to improve health outcomes and to ensure that resources are channelled strategically to produce the required health workforce.
- In most countries, this means placing an emphasis on community- and mid-level health workers, while continuing to produce higher-level professionals and essential management and support workers. Any expansion in the numbers of higher-level health workers only impacts after several years, reflecting their longer education and training.
- Community health workers represent the quickest way to increase access to many essential health interventions in rural and urban areas, and to ensure that services reach poor communities. Evidence from past experience shows that it is essential that community health workers are paid, properly supervised and embedded in the health system and its referral structures.
- Mid-level workers can supervise community workers and act as a referral point for patients needing higher-level care.





## Policy context

The Joint Learning Initiative, the *World Health Report 2006* and the 59<sup>th</sup> World Health Assembly all emphasize the need for countries to develop strategies to meet health objectives with a full spectrum of health workers to operate at all levels of the healthcare system, including community health workers, mid-level workers, managers, pharmacists, laboratory technicians, midwives, nurses and physicians.<sup>1,2,3</sup>

*Eighty per cent of the burden of disease in Ethiopia is due to communicable diseases, and most cases can be prevented or treated by community- and mid-level workers. We must use the assets at hand and provide what we can to our communities. There is no justification for the shortages of community- and mid-level workers.*

**Tedros Adhanom Ghebreyesus,  
Minister of Health,  
Ethiopia**

Finding the right balance has been challenging for many countries. For example, in sub-Saharan Africa a reliance on western-based models has meant that community- and mid-level health workers now make up only 7% of the workforce, compared with around 20% in Brazil and the Islamic Republic of Iran.<sup>4</sup>

According to the *World Health Report*, countries experiencing skills imbalances 'must revamp their health plans toward a workforce that more closely reflects the health needs of their populations, especially by deploying auxiliary and community workers'. It suggests that, at a community level, appropriate recruitment, simplification of tasks, training and supervision can lead to efficient and effective cadres, and recommends a competency-based approach, focusing on what tasks different levels of health workers are trained to do and are capable of performing.

Many countries are focusing their health and health workforce plans on the implementation of a package of essential health interventions to meet primary care and public health needs, which is an approach recommended by the Commission on Macroeconomics and Health.<sup>5</sup> For example, the African Union's health strategy, agreed by health ministers and heads of state, recommends that each African Union country define, cost and implement an essential health package, using an integrated approach. It urges governments to determine the categories of professional, mid-level and community health workers that will provide the appropriate human resource mix for their needs, and ultimately to build a cadre of multi-skilled trained staff at the centre of healthcare delivery.<sup>6</sup>

Figure 5 sets out the main healthcare provider groups, the level of the health system at which they operate, their relationship via supervision and referral and the management and support workers required to ensure that the system functions efficiently and effectively. This is a generalized representation: many country-specific variations exist that cannot be captured, such as the relative position between medical assistants and 'higher'-trained nurses.

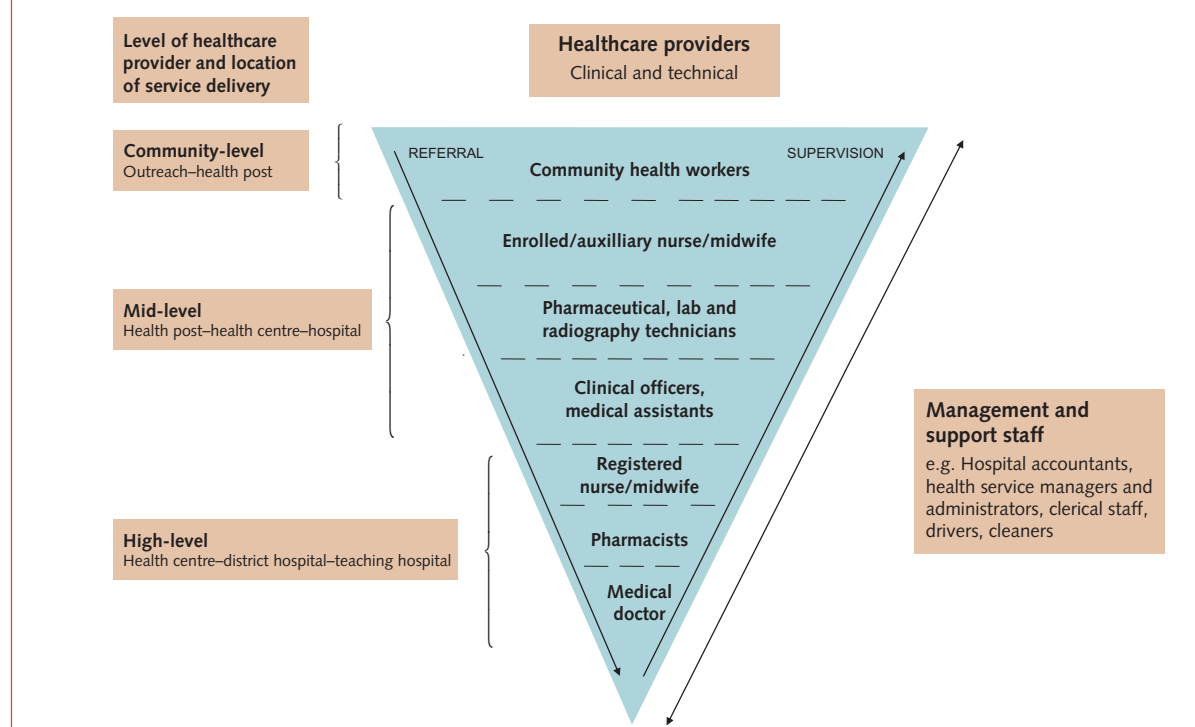
Although it is up to countries to decide what types of health workers they will educate and train and how many, experience from scale-up programmes shows that it is important to:

- ensure that the skill mix of health workers is determined by population needs or burden of disease, for maximum impact on health outcomes;
- integrate health workers into the health system, operating with infrastructure, an information system, a laboratory system and a procurement and supply system for drugs and equipment;
- provide adequate supervision and referral between different levels of the health system;
- ensure coordination and teamwork among all cadres, including community health workers and those in technical or supporting roles; and
- address attrition and retention in the workforce, including remuneration for all, good working conditions, career development and, potentially, additional incentive packages for rural service.

*Community health workers have an important role to play in providing services to the poorest and most vulnerable communities.*

**Peter Ngatia,  
African Medical  
& Research  
Foundation**

**Figure 5: How different health workers fit in a health system**



## Community health workers

Effectively addressing population health needs and tackling a country's high burden of disease require policies that focus on health services provided at the community level. The 1978 Declaration of Alma Ata recognized the community as part of the health system,<sup>7</sup> and a number of countries' current health sector strategic plans formally recognize the community level as an integral part of the health system (see the table overleaf). However, in many more countries, the role of communities in keeping people healthy and well does not receive the attention it deserves.

### Expertise by level of service and intensity

		Promotive and preventive	Curative and rehabilitative
Level 1:	Community health services	+++++	++
Levels 2 and 3:	Primary health services	++++	+++
Levels 4 and 5:	Referral hospitals (public)	++	++++
Level 6:	Teaching hospitals	+	++++

Source: Kenya Health Sector Strategic Plan: 2005–10.

The general term ‘community health workers’ embraces a variety of health agents selected, trained and working in their own communities, performing a diverse range of roles and activities. The main advantages are that community health workers can be trained and deployed relatively quickly (in one year), they understand the community’s health needs and they give otherwise unserved communities access to the health system.<sup>8</sup>

*The evidence base for mid-level workers already exists, now their use needs to be scaled up.*

**Eldryd Parry,**  
**Tropical Health**  
**Education Trust,**  
**United Kingdom**

An evaluation of the Lady Health Worker Programme in Pakistan, for example, shows that populations with access to multi-skilled community health workers are more likely to adopt antenatal care, receive medical assistance at birth and use family planning services.<sup>9</sup>

There is good evidence that community health workers can have a positive impact on health outcomes through health promotion and prevention tasks, as well as by delivering simple treatments that have typically been carried out by higher-level cadres. These include vaccinations, treatment for malaria and tuberculosis and case management of childhood illness. Several research trials have confirmed that community health workers can be effective in contributing to substantial reductions in child mortality.<sup>10,11,12</sup>

A Cochrane review based largely on evidence from high-income countries found that ‘lay health workers’ show promise in promoting immunization uptake and improving outcomes for acute respiratory infections and malaria, when compared with care provided by doctors and nurses. This demonstrates that community health workers have a role in all health systems, regardless of a country’s level of economic development.<sup>13</sup>

However, several enabling factors need to be in place in order for community health workers to be effective. Community health workers have the greatest impact on health outcomes where a broad approach to their education and training is taken, rather than an approach that produces multiple disease-specific cadres.

Other factors were summarized at a 2007 conference in Nairobi;<sup>14</sup> community health workers should:

- be paid and trained;
- have skills and training that focus on the communities’ health promotion/prevention needs as well as on high-impact curative interventions;
- be trained by a multi-faceted team of health specialists, with the necessary scope and length of training to determine their specific skills;

- be selected and supervised by professional health workers as well as community members; and
- be linked into the national health structure as an integrated part of the formal health system.

As described in chapter 3, several countries (Brazil, Ethiopia, Malawi and Pakistan, among others) have incorporated their own particular form of community health workers into their health system, remunerating them appropriately, extending training up to a year and promoting them as an essential part of the formal healthcare delivery system. It is important to distinguish these 'higher-trained' community health workers from the large numbers of voluntary, part-time workers who have been produced in the past. While community volunteers may play a valuable health-promoting role, and can usefully assist other community-based workers, alone they are not the answer to addressing the high burden of disease at the community level. Many volunteer programmes have lacked sustainability due to the absence of the enabling factors outlined above.

## Mid-level health workers

Mid-level or 'substitute' health workers have been defined as 'any cadre being delegated tasks normally performed by more established health professionals with higher qualifications'.<sup>15</sup>

Many types of mid-level workers exist, often in roles unique to a particular country, including auxiliary and enrolled nurses, medical assistants, clinical officers, health officers and pharmaceutical assistants, among others. They work in local health posts, health centres and hospitals.

Many countries have established a variety of mid-level cadres. In a review of 47 sub-Saharan countries, 25 identified the use of 'non-physician clinicians'.<sup>16</sup> Ghana and South Africa are two examples of countries that plan to focus future efforts on educating and training mid-level health workers.

Although there is a need to improve understanding and appreciation of what roles they are best suited to, several studies have demonstrated the effectiveness of mid-level health workers. For example, non-physician clinicians have been deemed competent both in basic diagnosis and medical treatment and in specialty activities such as caesarean section, anaesthesia and ophthalmology.<sup>15</sup> In Malawi, little difference was found in patient outcomes between childcare provided by medical assistants and that provided by doctors.<sup>17</sup>

In Mozambique, nurses with five years' experience have trained very successfully as surgical/obstetric officers, and carry out caesareans where there is no doctor – offering a creative solution to the human resource crisis and the problem of maternal mortality.<sup>18</sup> This is particularly significant as progress on Millennium Development Goal (MDG) 5 (maternal mortality) is slow, and skilled attendance at birth – and, more specifically, the provision of emergency obstetric care – is a crucial bottleneck. The Gambian government's eye care programme, supported by Sightsavers International, was one of the first to use mid-level cadres and community health workers in this field, and has demonstrated a decrease in the crude prevalence of blindness from 0.70% to 0.42% between 1986 and 1996.<sup>19</sup>

In several countries, such as Ethiopia, Malawi and the United Republic of Tanzania, the HIV/AIDS epidemic is leading to expanded deployment of mid-level workers, to increase access to antiretroviral therapy.<sup>15</sup>

Mid-level workers are also needed to provide essential supervision to community health workers. Ratios depend on country strategies, but to cite an example, in Brazil one nurse supervises six community health workers. Ethiopia is currently increasing numbers of health officers, partly to provide supervision to community-level health extension workers.

Scaling up mid-level health workers has three major advantages. First, it can help to maximize cost-effectiveness and efficiency in healthcare provision because education and training is shorter than for higher-level workers. The training costs for non-physician assistants in sub-Saharan Africa, for example, range from US\$1,000–US\$4,000 per year, compared with the average cost of US\$8,000–US\$12,000 for training a doctor. Second, remuneration is less costly than for higher-level workers. In Ghana, for example, antenatal care received from doctors is 38% more costly than that from a nurse or medical assistant. Third, it can help to combat migration: retention is easier if health workers are produced specifically for domestic healthcare needs, and, particularly in rural or deprived areas, without internationally recognized skills.<sup>15,20</sup>

African-born doctors and nurses working in OECD countries account for less than 12% of the total estimated shortages in Africa.

Like any workers, mid-level health workers need support and supervision, and care quality can decline when this is absent. Additionally, if mid-level cadres undertake responsibilities and tasks traditionally executed by higher-level workers, they will justifiably require appropriate incentives and career-development opportunities. The extent of government involvement in the practice of health workers ranges from complete professional autonomy to direct state control. Professional protectionism can hinder the shifting of responsibilities and tasks. For example, a lack of consultation with professional associations in Ghana, Kenya, Malawi and Zambia led to a halt in the training of enrolled nurses. In some countries, where certain tasks are legally mandated to particular cadres, legislative changes may be necessary to make this possible. The recently published global recommendations on task-shifting provide essential guidance in this area.<sup>21</sup>

## High-level health workers

High-level medical, nursing, midwifery and pharmacy staff are an essential component of all effective health systems. Doctors have advanced diagnostic skills and offer essential supervision to less specialized cadres; nurses provide essential patient care and supervision, as well. Such workers normally require a university or advanced-level degree, and their qualifications are usually recognized internationally. This makes them particularly susceptible to migration – both internationally and to alternate sectors (such as nongovernmental organizations (NGOs) and the private sector) within their own countries.

In addition to increasing production of community health workers and mid-level health workers, countries need to simultaneously pursue longer-term strategies to address the shortage of high-level workers. Strengthening community-level health services generates demand for more sophisticated skills and services, and an effective referral structure is needed to give people access to more specialized care when required. Problems arise when such

care is not available. In Ethiopia, for example, health extension workers have 'unleashed' demand for higher-level referral care, which is proving difficult to meet. Similarly, analysis in the United Republic of Tanzania has revealed large shortfalls in the medical specialist groups needed to provide a package of 'essential health interventions'.<sup>22</sup> Over the years, the government has trained up relatively large numbers of lower-level workers, but it has identified that it also needs to scale up the number of higher-level cadres.

Although migration is an important concern, the massive shortfall in the production of trained health workers, at all levels, underpins every other problem. For example, African-born doctors and nurses working in Organisation for Economic Co-operation and Development (OECD) countries account for less than 12% of the total estimated shortages in Africa.<sup>23</sup> Doctors, nurses, midwives and others are key to a functioning health system, but their training needs to be combined with improvements in working conditions and opportunities for professional development, as well as incentive packages and higher salaries, to improve their retention.

## Management and support staff

Management and support staff are also essential to a functioning health system. These include general managers, accountants, ambulance staff, statisticians, lawyers, medical secretaries, gardeners, computer technicians, cleaners, building and engineering staff, skilled administrative and general support staff. According to the *World Health Report 2006*, while management and support staff outnumber healthcare providers in developed countries, the reverse is true in developing countries. So it is in this group that the greatest deficit in competencies can exist.

In many cases, insufficient numbers of professional managers mean that doctors and nurses perform this function alongside their regular tasks, without having had sufficient training. This lack of management capacity, especially at local levels, has been identified as a key factor preventing the effective use of resources and successful scaling up of health services to reach the MDGs.<sup>24,25</sup>

Given that the private sector often has skills and training capacity in the management and leadership disciplines required by health system managers (financial, human resources, information technology, project management, organizational development), public-private partnerships are particularly appropriate for improving the training of health sector workers in management and for developing leadership tools.<sup>26</sup>

If management and support staff are adequately trained and rewarded and are provided with clear roles and responsibilities, they can ensure that services are effectively managed, drugs and other resources are available and in the right places, diagnostic tests and procedures are carried out, equipment is mended and facilities are kept clean.

At a national level, governments need to ensure that they develop, implement and maintain functioning management support systems, and also provide sustained financial support and coordinated plans for strengthening local management capacity.<sup>24</sup> Education and training programmes for this group need to be factored into all scaling-up plans in order to ensure appropriate numbers and skill mix.



# How to build strong education and training systems

# 5

## Summary

The need to rethink approaches to health worker education and training is not new, but is becoming more urgent. Many countries, both rich and poor, lack a robust education and training system that supports their current and future health needs.

Evidence from countries and institutions that have been successful in scaling up the health workforce indicates the need for an education and training system that is flexible and focused on population health priorities, that links teaching with provision of health services and research, and that is supported by policies and a regulatory system that foster quality.

There is a great deal of excellent education and training being undertaken in developing countries. But the sheer scale of the challenge and the pace needed means that existing innovations and effective practice need to be more widely spread.

This chapter sets out the guiding principles and strategies that the Task Force has identified for education and training. They have been drawn from the evidence, the case studies and the experience of leaders in the field. The guiding principles are:

- address country health needs and embed education and training in the health system;
- increase equity and efficiencies of scale through innovation in curriculum design and delivery; and
- enhance quality through leadership and collaboration.

These principles underpin the following strategies:

1. Reduce attrition among students and teachers, and improve accessibility.
2. Integrate pre-service and in-service education and training.
3. Develop common educational platforms for different types of health worker.
4. Move learning to the community, using modular education and action learning.
5. Increase use of information and communication technologies.
6. Improve education through quality assurance programmes.
7. Build institutional capacity by:
  - a. expanding teaching capacity;
  - b. fostering twinning and partnerships;
  - c. maximizing impact through regional approaches; and
  - d. harnessing public–private partnerships.

Based on these principles and strategies, the Task Force also sets out in this chapter an example 10-year plan for scaling up the education and training system for health workers, with short-, medium- and long-term goals. It is one component of a national road map for scaling up the production of health workers described in chapter 3.





## Guiding principles

### Address country health needs and embed education and training in the health system

At the cornerstone of successful efforts to scale up education and training of health workers is the ability to respond in a flexible, cost-effective and evidence-based way to population health needs and country health priorities. Education and training programmes should be competency and outcomes based and designed to prepare health workers for the responsibilities they will face when they are employed.

Pre-service health worker education in developing countries tends to focus on theoretical aspects of health practice, rather than on providing health workers with the knowledge, skills and attitudes most relevant to common health problems, which range from infections and high maternal mortality to the growing incidence of chronic disease and mental illness.

Because population-level interventions such as tobacco control measures appear to be most cost-effective when coupled with clinical and public health preventive services,<sup>1</sup> it is important to ensure that health worker curricula focus on the essential competencies of public health and primary healthcare. Embedding health worker education and training programmes within the health system itself can familiarize learners with the needs of the community at an early stage and allow more effective and efficient tailoring of education programmes to meet the health system's needs.

Institutions have adopted innovative objectives and approaches in educating health workers to respond to the burden of illness. Walter Sisulu University's Faculty of Health Sciences in South Africa was created in 1990 with the specific goal of producing health professionals for underserved areas.<sup>2</sup> The Barrio Adentro 'micro-school' project in Venezuela carries out all education and training in supervised community settings, responding directly to patients' needs.<sup>3</sup> The University of the Philippines collaborates extensively with government health services in decentralized clinical settings, to help students better understand and improve local health systems.

*There is a need to link the education system with systems that actively promote quality of care so that one can respond to the other.*

**Andy Haines,**  
London School  
of Hygiene and  
Tropical Medicine,  
United Kingdom

**Note:** There is a large body of evidence on education and training of health workers, of varying degrees of scope and rigour. This chapter reflects the available evidence. The evidence base for most of the principles and strategies comes from material published in peer-reviewed journals and in the public domain, and reflects experience from multiple sources. The sources for evidence on leadership, attrition, integrating pre- and in-service training and twinning are slightly more limited, and evidence on public-private partnerships is often not yet published. Further research is needed: in particular, systematic reviews and randomized controlled trials are rare in this field, and are an important area for future development.

### Curricular change in Brazil

Brazil's PRO-SAUDE programme provides training institutions with financial support, through a competitive bidding process, for projects aimed at reorienting the health system to meet the needs of communities. In 2007, 90 medical, nursing and dental schools received funding for curricular changes that promoted interaction between the professions, primary care and action learning. As a result of this training, the programme aims to expand to 40,000 the number of community-based family health teams providing primary care.

A multi-sector planning process promoting communication between the education and health sectors provides a vital base for scaling up education and training (see also chapter 3). Improving capacity to collect and act upon health-sector research findings is essential in linking educational objectives with country health needs and priorities. The Essential Health Interventions Project in the United Republic of Tanzania, for example, links data with strategies for improving the health system. Between 1997 and 2002, two health districts showed marked outcome improvement, reducing child mortality by 40%, with minimal additional investment.

### Increase equity and efficiencies of scale through innovation in curriculum design and delivery

There are well-documented weaknesses in conventional approaches to health worker education programmes. These include overspecialization in scientific and clinical disciplines; a lack of relevance to actual health practice; protection of territory among health professions; structures for certification that lock health workers into narrow professional streams; low scope for educational institutions to manage autonomously their courses and staff; and a low priority placed on teacher training and excellence.<sup>4</sup>

Often, pre-service curricula for health workers tend to overemphasize theoretical knowledge and practice in well-resourced tertiary hospitals, with less emphasis on the competencies needed at the primary care level. As a result, graduates' ability to deal effectively with real-life health needs may be compromised – particularly where there are few resources and limited access to equipment and technology. The education system may also fail to ensure that competencies fulfil accepted intervention standards, such as in the training of skilled birth attendants.<sup>5</sup>

Finally, there is the possibility that most curricula are, in themselves, wasteful. Education programmes tend to include material that is not directly applicable or relevant to prevalent health problems. As a result, curricula are overly long and contain numerous redundancies. Rethinking, streamlining and focusing the curriculum with the objective of shortening overall duration of pre-service education programmes will result in accelerated production of health workers.

*In scaling up we need to resist the temptation merely to create more of the same. We need to increase productivity and efficiency by doing things differently, such as through the use of technology and a significantly larger role for the private sector. Scaling up is not merely about numbers.*

**Srinivas Venkatesh,**  
National Institute  
of Communicable  
Diseases, India

### Reducing education and training time in Ethiopia

Improvement collaboratives can be used to make curricula more relevant. For example, the Millennium Medical School in Ethiopia tailors its education programme to meet Ethiopia's health needs and reduce education and training time to three-and-a-half to four years from six years.

*Scale-up cannot happen without leadership from education institutions and professional societies, as well as from government and communities. We need long-term commitments to secure sustainability. Outside voices will not motivate and sustain change in countries; leadership must come from within.*

**Nelson K. Sewankambo, Makerere University, Uganda**

Curriculum innovation can promote lifelong learning for health workers. Students may progress along a continuum through pre-service higher education institutions to certification, and then access in-service training at a pace and in a style that reflects the health needs of the people they serve. Such an approach enables workers to develop the competencies to meet the burden of illness of the population. The most effective interventions are likely to be those that can be used to develop the full spectrum of health workers, based on adult-learning principles and engaging students in the community.

In addition to focusing on the acquisition of appropriate and relevant knowledge and observable clinical skills, the backbone of innovative curricular content includes grounding in communication skills, critical thinking, teamwork, human and patients' rights awareness, and the contextual lessons of the social and behavioural sciences. Competencies allowing graduates to continually assess and analyse their community's needs and to advocate on its behalf are also part of this curriculum.

By creating opportunities to use shared teaching tools, non-traditional teachers and extended or year-round academic calendars, curriculum innovation can also contribute to significant efficiencies of scale. Due to increasing reliance on information and communication technologies in health worker education and in healthcare services, students need to become competent in their use.

Finally, given the paucity of teachers, it is important that the curriculum, particularly at the in-service level, prepares learners to teach those who follow. Including teaching as a core competency, as is the case in countries such as Australia, Canada, the United Kingdom and the United States, and providing learners with the opportunity to develop their teaching skills will add significantly to the stock of teachers. In Ghana, health practitioners are encouraged to spend a portion of their time on teaching, and receive an allowance for books and research for this.

### Enhance quality through leadership and collaboration

Despite the challenges countries face in scaling up health workers, many talented and dedicated academic leaders work in less-than-ideal circumstances to create effective learning environments, and have established innovations in resource-limited contexts.

To continue doing so, they need resources, decision-making tools and institutionalized support.

Education institutions can use ideas from other sectors as a basis for innovation. Fostering communities of learning can be a particularly valuable approach in leading and managing country-level scale-up.<sup>6</sup> The World Bank's 80 such initiatives provide unique opportunities for education leaders to share innovations in curriculum development and delivery, and to support each other's efforts. A similar example of communication among stakeholders is Project UNI, which links 23 Latin American universities with local communities and public health services to implement systemic change.

There are many ways of improving collaboration and sharing of information among education leaders to stimulate and sustain innovation. These include, among others, networks of academic partners in developing and developed countries, 'clearing houses' for open consultation and advice on specific problems, and more systematic global partnerships for sustained linkages, learning and support.

The International Finance Corporation's Global Business School Network, for example, links business schools around the world, including in Africa and Asia. It aims to enhance the institutional capacity of business schools in emerging markets and strengthen the skills of managers by expanding opportunities for their education and training and sharing of knowledge and best practice. Health training institutions could replicate this model.

Another example is the quality collective, designed by the Institute for Healthcare Improvement and piloted in Malawi and South Africa by the United States Agency for International Development and the Quality Assurance Project. Originally designed to improve healthcare quality, these collectives can also improve curriculum renewal in education.

The quality collective's main advantages are its low cost and empowering process: the collective's leaders help identify the specific problem to be solved and then assist as members determine the changes required through short peer-learning conferences. Between conferences, members return to their own work environments and use new insights to implement change. Regular progress reports refine goals and approaches as necessary, and resistance to change is diminished because the work is done by respected local experts.

There is scope for a wide range of different partnerships – between governments, academic institutions, nongovernmental organizations (NGOs), service providers and others. If strategic and sustained over the long term, they offer an excellent opportunity for shared learning, exchange of information and staff and mutual benefit to all agencies involved.<sup>7</sup>

## Key strategies

### 1. Reduce attrition among students and teachers, and improve accessibility

Attrition of health workers is a serious problem. In Zambia, for instance, rates have been estimated at between 25% and 50% over five years, with death and migration as major contributors.<sup>8</sup> These rates are mirrored in education institutions, resulting in serious shortages of teachers for existing students who require clinical placements, and ultimately undermining efforts to replace health workers lost from the system.

*Why are there high levels of attrition, and how can we combat them? Health workers – actual and future – don't see a meaningful future. They need to have confidence in the system, feel that they can contribute meaningfully and be valued and respected.*

**Moretlo Molefi,**  
NEPAD e-Africa  
Commission,  
South Africa

Student attrition is also high. In pre-service education, wastage ranges from 10% to 40% annually in four sub-Saharan countries.<sup>9</sup> Retaining more students through initiatives such as need-based financial aid and quality housing, may have a quick, cost-effective impact on health workforce scale-up. In South Africa, for instance, Walter Sisulu University has developed an attrition reduction programme by providing academic support for students with inadequate secondary school backgrounds.

An important factor in retention is accessibility to health-discipline careers. With appropriate support structures, admissions policies that promote the participation of students from disadvantaged backgrounds or the underrepresented gender will improve accessibility and will likely produce more graduates prepared to work in underserved communities,<sup>10,11</sup> improving health-system equity for both providers and patients.<sup>12</sup> Initiatives to improve the workforce's gender balance will also improve the accessibility of careers in health. Increased scholarship opportunities may also promote equity in this area.

An additional accessibility factor is the location of education facilities. Most health worker education and training institutions are located in urban centres, as are most health-service facilities, and their focus on hospital-based instruction may not reflect the most prevalent community needs. The development of new higher education institutions and campuses of existing institutions distributed into rural and urban disadvantaged communities would improve access for both students and citizens needing health services.

### **Improving access with micro-schools in Venezuela**

Venezuela's Mission Barrio Adentro aims to fully embed health worker education in the local health system for the benefit of students and patients. Dispensaries in underserved areas are staffed by Cuban health professionals to become micro-schools; their students (many recruited from disadvantaged backgrounds) receive supervised practical training in groups of five to ten. Since 2005, the programme has created 10,000 new educational places.

## **2. Integrate pre-service and in-service education and training**

Pre-service curricula that emphasize lifelong learning and relevant health issues and competencies better prepare graduates for in-service work and ongoing training. Lifecycle, modular approaches to learning, which allow health workers to access training or join the workforce at different entry points, promote career ladders – a potentially important tool for enhancing health worker performance.

Health workers generally enter pre-service education after completion of secondary school. It is necessary to ensure that there are enough qualified secondary school graduates to allow successful transition to tertiary education, on the one hand, and sufficient pre-service capacity in tertiary education institutions to receive the students, on the other.

But a health worker's lifecycle of learning does not end with the completion of pre-service education. Lifelong learning requires a commitment to ongoing education and training and upgrading of skills and competencies. Indeed, in-service or continuing education over a 30-year career may exceed that of the three- to six-year pre-service segment. In-service education, then, is a vital



aspect of health worker production scale-up in both developed and developing countries, but the evidence for its effectiveness as currently organized and delivered is not clear.<sup>13,14</sup>

Improving health worker performance requires much more than knowledge and skill. In general, it appears that multifaceted interventions addressing multiple determinants of performance are likely to be more beneficial than single interventions. There is need for an international initiative to build the research base for beneficial, cost-effective approaches to achieve and maintain high-quality health worker performance.<sup>15</sup>

In-service training is often disease specific and not integrated with the broader health system. Frequently, health workers are educated off-site from their workplace, incurring high opportunity costs and disrupting care delivery for questionable improvements in long-term performance. Not infrequently, in-service programmes are provided to correct skill deficits that should have been acquired during pre-service education.<sup>16</sup> Redesign of the pre-service curriculum to reflect health needs will provide a more substantial base for effective, continuous in-service learning.

Providers of in-service education include higher education institutions, professional associations, NGOs, vertical programmes and the private for-profit sector, including drug companies. At the very least, in-service education and training programmes require policy and supervisory environments to support the care delivery strategies they teach.<sup>17</sup> Coordinated, multifaceted, institution-led and locally delivered continuing education programmes may be the best option to ensure quality in-service education that is integrated with national health system needs. They should provide some form of validation once completed, and should include ongoing recertification programmes that disseminate new and updated knowledge and promote participants' progression along career ladders.

### **Continuing education in Bangladesh**

Bangladesh is moving towards more comprehensive career ladders through a competency-based continuing education programme on emergency obstetric care. The programme, in which medical officers and nurses train in teams, can be counted towards further specialized degrees and requires participants to commit to two years of service in a rural area. Efforts are under way to expand the number of places, to harmonize this and other midwifery qualifications, and to better incorporate the courses into a 'career ladder' and certification framework.

## **3. Develop common educational platforms for different types of health worker**

A common educational platform refers to aspects of a curriculum that focus on the general knowledge and skills needed by more than one type of health worker, and that can provide a common knowledge base for students in all disciplines. These often use shared facilities and learning objects, teachers who can instruct and supervise different cadres, and curricular approaches that can be tailored to specific purposes.

At the pre-service level, many health worker schools currently train several cadres of health workers in relative isolation from one another. Common platforms, including multipurpose education institutions, can enable institutions to shift their teaching focus to support the changing needs of the health system. Incentives to stream students from the platform into particular cadres according to evolving need can contribute to this flexibility.<sup>18</sup>

The Xochimilco health sciences modular programme at Mexico's Universidad Autónoma Metropolitana prepares students for work in primary care settings. It features a common intake year that focuses on general competencies before students opt for a specific focus on medicine, dentistry, nursing or nutrition. Jimma University in Ethiopia is using a team-based learning approach in which groups made up of more than one cadre are educated together (see box). Both examples help improve mutual respect and communication among workers, increase professionalism and help reduce errors. They are often carried out in district health centres under the most relevant supervisor, regardless of that supervisor's profession or discipline.

#### **Team-based learning at Jimma University, Ethiopia**

Team-based education has operated since 1990 at Jimma, where teams of 20 to 30 final year students in medicine, nursing, pharmacy, laboratory science and environmental health are posted to district health centres. There, they deliver services ranging from nutrition promotion to primary care and basic laboratory services, becoming familiar with the health centres and with their fellow students' disciplines in the process. The programme is managed by a central office within the university. The school is also developing a geographic information system data centre to manage the epidemiological data gathered during these placements.

In-service education and training can also benefit from the use of common platforms, particularly through team-based scenarios or common teaching tools used in in-service courses for several cadres. And they can be useful for retraining health workers who have left the system, reducing the need for significant scaling up of pre-service education.

The detailed understanding of different cadres that can be conveyed through common platforms may also facilitate changes to skill mix at the point of need (often called 'task-shifting').<sup>19,20</sup> The use of competent and supervised alternate providers has been found to be highly effective. In Mozambique, the outcomes of caesarean sections carried out by trained medical officers were comparable with those carried out by specialist obstetricians. Strategies for task-shifting are most effective when they are embedded in effective systems of education, supervision and referral. For example, simply increasing the number of skilled birth attendants engaged in solo practice will not significantly reduce maternal mortality if access to the facilities and expertise needed to manage complicated deliveries is not also improved.

#### **4. Move learning to the community, using modular education and action learning**

Public health and primary care can act together as a unifying focus for curricular renewal. Education systems that are well integrated with health



systems mean that curricular design can respond better to local health needs. Higher education institutions using a distributed education model with satellite sites in rural and remote areas can also offer unique advantages.

The concept of community-based education and service (COBES) was developed at Ilorin University in Nigeria in the 1960s, and is now used by training institutions around the world, including in India, South Africa (see box) and Malaysia. COBES approaches prepare students to address the priority needs of local communities, emphasizing partnership, problem solving and health promotion. They allow students to progress gradually from basic health education activities to the provision of clinical health interventions. Key to their success has been support at the highest level of the institution; close, formal consultation with the community; and a commitment to serving rather than simply studying the communities where students work.<sup>21</sup>

At the Faculty of Health Sciences at Moi University in Kenya, students work on existing community-based programmes, such as nutritional counselling or maternal health initiatives, as an integral part of their training. The final two years of the University of KwaZulu-Natal's Bachelor of Nursing uses community-based courses for field placements. Other streams allow nurses to use full-time work experience to upgrade their qualifications.

#### **COBES-based curriculum at Walter Sisulu University, South Africa**

The medical school at the University of Transkei Unitra — now Walter Sisulu University — was established in 1985 with the mission to produce physicians with the necessary technical and social skills to provide healthcare in rural and disadvantaged communities. Realizing that traditional teaching approaches would not achieve their objectives, the medical school adopted a problem- and community-based curriculum, which is now being used throughout the parent Faculty of Health Sciences.

The school has developed extensive partnerships with the community – community members participate in curriculum development, student selection and evaluation, and community-based practitioners hold full faculty appointments. In addition to providing health services, the school and its students address other local development needs, such as access to basic education and safe drinking water.

Post-secondary education programmes are generally longitudinal. However, the practical goals of health workforce development mean that a modular education approach may be equally effective, in which modules of coursework are separated by periods of action learning or supervised fieldwork within a healthcare team. Modular education enables students to acquire increasingly complex competencies, including management skills, while gaining experience providing healthcare services. As in the Xochimilco programme outlined above, effective links between course modules and field placements are key to the success of modular education, so that the placement reinforces the lessons of one module and introduces new issues to be explored in the next.

## 5. Increase use of information and communication technologies

Information and communication technologies (ICTs) are revolutionary tools in facilitating and promoting pre- and in-service education, including approaches such as COBES. The African Union Second Decade of Education has recognized the central role of ICTs in enhancing the quality of teacher training and the educational experience in general. The 2006 Latin American Conference on United Nations Millennium Goals and ICT stressed the role of ICTs as a tool for progress, to improve health system management and education accessibility.

Globally, 19% of the population had access to the Internet in 2007. This figure ranges from 4.7% in Africa to 70% in North America. Despite ongoing cost and speed barriers, growth of access between 2000 and 2007 in Africa and Latin America was, respectively, 3.5 and 2.2 times that of the world average. Africa also has the world's highest ratio of mobile to total phone subscribers and a mobile subscription growth rate of double the world average.

In light of these numbers, ICTs represent an extremely promising approach to increase access to health worker education.<sup>22,23</sup> Technologies such as the Internet, mobile phones and personal digital assistants (PDAs) are being used in developing countries in promising ways. The use of satellite technologies, in particular, will significantly increase access to broadband at decreased cost, and improving penetration into low-income countries may depend on initiatives that bring the public and private sectors together.

A benefit of ICTs is that national boundaries do not limit access and participation. Higher education institutions can increase the number of course offerings and expand the reach of existing teachers through synchronous and asynchronous distribution of audio and video streaming of lectures, small-group teaching and other materials. A teacher in Ghana can teach the same material to students in any English-language school. In Brazil, using distance education approaches, PROFAE has trained more than 13,000 new teachers since 2000. Free and open-source learning materials and greater use of Web 2.0 or social networking learning approaches – such as the People's Open Access Education Initiative, which aims to build global public-health capacity<sup>24</sup> – are becoming a cornerstone of distance and electronic education.

An additional benefit is that ICTs can be used for multiple purposes, ranging from the registration of births to teleconsultation and open learning. For example, Canada's International Development Research Centre has partnered with the Mongolia National Medical University to introduce both telemedicine facilities and low-bandwidth continuing distance education for health workers.

### Computer-based training in Uganda

A 1999 trial of a computer-based package, which included facilitated classroom sessions and hands-on clinical practice to train Ugandan health workers in the Integrated Management of Childhood Illness framework, resulted in achievement and knowledge retention equal to that of the standard in-service training course, while requiring fewer training days and facilitators (nine days vs. 11, and four facilitators vs. six) and costing nearly 30% less overall, excluding the costs of software development. Trainees were also enthusiastic about the approach. In this case, ICTs both improved learner satisfaction and lowered cost.<sup>25</sup>

The ability to dissociate time and distance from learning activities and the ability of learners to study while they deliver service are key features of RAFT, an Internet-based programme in francophone West Africa and of AMREF's computer-based approach to training Kenyan nurses. ePortuguêse, a WHO-sponsored portal for health-related institutions in Portuguese-speaking countries, offers comprehensive health information resources to improve health systems.

## **6. Improve education through quality assurance programmes**

To improve quality standards, particularly in light of an increase in private sector educational provision during the past 20 years, several countries have instituted quality assurance processes. A wave of new national certifying bodies in Latin America during the 1990s and those currently emerging in many sub-Saharan African countries<sup>26</sup> are part of this trend.

Quality assurance is a term given to the systematic review process that determines whether a higher education institution meets standards of education, scholarship and infrastructure. Approaches to quality assurance include academic audits and institutional or programme accreditation. The ultimate objective of quality assurance is to improve the educational process, the curriculum, the teachers and, ultimately, the graduates. It assures the public that a programme of study prepares competent practitioners for the country's health priorities, provides institutional accountability and allows each institution to undertake self-assessment to guide future change.

The presence of quality assurance mechanisms may allow governments to develop a more effective mix of public and private sector education providers by licensing only those that meet accepted standards.<sup>27</sup> When performance does not comply, governments have the authority to impose stringent conditions to promote improvement.

Quality assurance bodies may be run by government, as in El Salvador and Nepal, or by external third parties, as in Ghana and the Philippines. Because quality assurance is expensive to carry out in terms of both personnel and cost, countries might consider creating regional accreditation bodies as an economy of scale. Recent examples of initiatives within regions with similar health needs include the Caribbean Accreditation Authority for Education in Medicine and Other Health Professions, established in 2003. Through this initiative, Member States of the Pan American Health Organization (PAHO) committed to ensuring the accreditation of 70% of health worker schools by a recognized accreditation body by 2015. Another example is the nursing school accreditation framework developed by the East, Central, and Southern Africa College of Nursing.

The World Federation for Medical Education and the Conférence Internationale des Doyens des Facultés de Médecine d'Expression Française promote international standards for quality improvement in medical schools and advise institutions on the development of accreditation standards. The International Pharmaceutical Federation has also developed a comprehensive set of educational standards for undergraduate or pre-service curricula.<sup>28</sup>

Accreditation initiatives may also prompt efforts to improve the credentialing of individual graduates. Fewer than 60% of developing countries require graduating medical students to pass national certifying exams. In Africa and South East Asia, this figure drops below 40%.<sup>29</sup> Graduates of programmes that have been assessed against rigorous quality standards carry a stronger legitimacy in the workforce. The International Council of Nursing has developed a framework for such standards, identifying the key competencies of nursing graduates that can be used to gather data for analysing and comparing standards of education.

## **7. Build institutional capacity**

Health worker education and training institutions in many countries aim to scale up their capacities by expanding the number of qualified teachers, building on twinning and partnerships, and exploring regional approaches to their work. First and foremost are cost-effective approaches maximizing the use of existing capacity in the country. In the longer term, significant investment, with scope for novel approaches to financing and enhanced public-private partnerships is needed.

### ***a. Expanding teaching capability***

One major obstacle to scaling up education in developing countries is the severe shortage of qualified teachers, which constrains the implementation of innovative learning approaches. These shortages exist for the same reasons as underlying health worker shortages: poor working conditions, low pay, limited career advancement and no access to study leave. Scaling up the numbers and capacity of teaching staff is a vital prerequisite for scaling up education.

National and institutional policies that promote the use of non-traditional teachers from different backgrounds will increase the range of available instructors, as well as promote quality teaching within a new curriculum environment. Other options for scaling up teachers in low-resource environments include:

- providing a supportive work environment through meaningful incentives (in Malawi, one faith-based organization doubled its staff of nurse tutors by providing targeted salary supplements and free staff housing);
- hiring part-time teachers from the clinical sector (for example, at Walter Sisulu and Makerere universities);
- recruiting teachers from the diaspora (as the Public Health Foundation of India is doing for its institutions);
- twinning institutions to create opportunities for teacher exchanges and placements (ICTs-facilitated Master's courses are offered at the University of KwaZulu-Natal by institutions in the United Arab Emirates);
- encouraging developed countries to help build capacity in developing countries;
- using educational facilities for teacher training, in-service learning and continuing education when students are not present; and
- moving to a semester system that provides year-round instruction, reducing overall training time.

Other approaches include 'train the trainer' models (one person trains three people who train others in turn), chain education (skills teaching between cadres, for example, midwives teaching medical students), the development of multi-skilled teachers capable of teaching more than one cadre, peer teachers (students teaching each other) and simulated patients who double as evaluators. Including these human resources within a well-structured and evaluated teacher development programme will dramatically increase the number of teachers.

### **Training of trainers in Ethiopia**

Training of trainers took place in Ethiopia in 2003 before the main Health Extension Programme to improve community-level health services began. The Ministry of Health selected 85 pre-trained faculty who trained more than 700 instructors in regional workshops, using existing physical infrastructure as training sites. These instructors, in turn, have trained more than 15,000 health extension workers. In 2007, 37 centres in seven regions were being used.

### ***b. Fostering twinning and partnerships***

Strategic and long-term institutional partnerships – facilitated by governments and development partners – can result in scale efficiencies and improvements in quality. There are many examples of beneficial partnerships between developing and developed country healthcare and higher education institutions, as well as between institutions within and across developing countries.

The essential elements for successful twinning ventures are the similarity of institutional vision, the willingness to establish and promote long-term bilateral exchanges, the quality and depth of the interpersonal relationships and the development of institutional trust. Above all else, such partnerships must centre on the needs of the developing country institution as it defines them. Key outcomes of twinning arrangements include the delivery of education and training in the short term, the development and distribution of educational materials, the development of networks that facilitate and encourage best practice, and leadership training opportunities.

Education institutions, for example, could collaborate with government, the health system and business schools to offer short courses on leadership and management skills for existing health workers. Over the longer term, these offerings can migrate to full degree courses in evidence-based health administration and management. In countries where population health is closely linked to that of livestock, there is also scope for cooperation between the public health and veterinary sectors in designing curricula that respond to community needs.

Examples of successful twinning and partnerships worldwide		
Region	South–South	North–South
Latin America	<p>Cuban and Venezuelan governments, implementing the Barrio Adentro micro-schools</p> <p>Universidade Católica de Moçambique and the Universidad de la Sabana, implementing COBES in the newer schools</p> <p>Proyecto Magisterio, a three-module programme to help improve the management of health worker schools, was developed by the Instituto Superior de Ciencias Médicas-Habana and is now being implemented in Ecuador and El Salvador</p>	<p>Canada's University of Manitoba and the Instituto Superior de Ciencias Médicas-Habana, developing and strengthening graduate nursing programmes</p> <p>McGill University in Canada and Peru's Universidad Peruana Cayetano Heredia, strengthening preventive mental health programmes</p>
Africa	<p>Formal participation by African universities, including Moi and Western Cape, in Makerere's transition from faculty to College of Health Sciences</p> <p>National School of Public Health (South Africa) offering advanced training to students from other schools</p>	<p>University of Leeds (United Kingdom) and Mbarara University Teaching Hospital (Uganda), improving nursing training</p> <p>Multifaceted initiative between Leicester (United Kingdom) institutions and Gondar College of Medical Sciences (India)</p> <p>Master's in nursing programme developed at University of Ghana in partnership with University of Alberta (Canada)</p>
Middle East	<p>Fellowship programme in which institutions in Tunisia and Morocco educate doctors from six countries in francophone Africa</p> <p>Pre-service education and staff development for Somali students and teachers in Sudanese universities, particularly Shendi University</p> <p>Collaboration between nursing schools: Afghanistan–Pakistan, Somalia–Jordan</p>	<p>University of Windsor (Canada) and Jordan University of Science and Technology, developing teaching and continuing education capacity for rural nurses</p> <p>Université de Montréal (Canada) and Université Saint-Joseph de Beyrouth, improving public health education and management capacity</p>



Examples of successful twinning and partnerships worldwide		
Region	South–South	North–South
Asia	University of United Arab Emirates and University of KwaZulu-Natal (South Africa) collaborating on distance education	Maastricht University (Netherlands) and eight medical schools in Vietnam, strengthening medical education
	James P. Grant School of Public Health (Bangladesh) providing places for students from a number of South East Asian and African countries	Columbia University (United States) and Ben-Gurion University of the Negev (Israel), establishing Medical School for International Health

### ***c. Maximizing impact through regional approaches***

Institutions can profit from economies of scale by sharing responsibility for the education of highly specialized health worker cadres. While it may not be cost-effective for a country or institution to develop neurosurgeons or public health experts, for instance, two or more countries might combine their resources to develop an academic programme that could meet the needs of all. The World Bank is partnering with medical schools in North America, Ghana and Nigeria to develop a regional medical centre in post-conflict Sierra Leone and Liberia.<sup>30</sup> The James P. Grant School of Public Health in Bangladesh and the National School of Public Health in South Africa offer extensive opportunities for advanced training regionally and internationally. In the Southern African Development Community, some countries do not have medical schools. South Africa reserves 5% of its medical training places for students from these countries, who are not charged international fees.

There is also scope for the development of regional professional networks. South Asian health worker education institutions, for instance, with support from the United Kingdom's Royal College International Forum, established a common curriculum and competency framework for education in family medicine in 2003. The process has resulted in further regional cooperation in the development of health worker teacher training and evaluation.

Economies of scale can also be gained through regional centres of excellence with specific expertise that supports scale-up, such as epidemiological data banks to inform public health training needs, or knowledge translation centres based on the Cochrane Collaboration. The Alliance for Health Policy and Systems Research has established several global research centres, including the Centre for Systematic Reviews on Human Resources for Health, which opened at Uganda's Makerere University School of Public Health in 2007.

Networks of country-level observatories, for example, modelled on those of the PAHO (see box), can support development of the health workforce (see also chapter 8). India's new National Health Systems Resource Centre aims to pool technical assistance from development partners, build an information repository, and create experience-sharing mechanisms with similar health sector



reform efforts in other low-income countries. Similarly, the African Union has established the development of national Educational Management Information Systems (EMIS), interconnected with regional and continental EMIS networks, to produce and analyse reliable statistical data for policy and monitoring purposes.

### **Observatory of Human Resources in Health, Latin America and Caribbean**

The PAHO launched this set of observatories in 1999 to help assess the impact of healthcare reform on the workforce. Through permanent national bodies with a similar function, the observatory generates core data on labour regimes, education, productivity and governance in participating countries. Its wide aim is to help participating countries develop health worker competencies for new processes and health service models, and train personnel, including leaders and managers.

#### ***d. Harnessing public–private partnerships***

Medical schools are usually publicly funded because of their high costs. However, many private schools – for-profit, non-profit or faith-based – are of high quality and educate a significant proportion of health workers in the countries where they operate. In Uganda, for example, more than 60% of nursing education in rural areas is provided by the Uganda Catholic Medical Board. The Aga Khan Foundation operates several healthcare facilities in East Africa, each with medical education responsibilities.

International not-for-profit organizations also have a role in scaling up by providing resources and expertise. For example, the Foundation for Advancement of International Medical Education and Research (FAIMER) funds leadership development programmes for health profession educators.

In resource-constrained contexts, engaging the private sector may also prove to be crucial in securing the capital costs to develop new higher education institutions and campuses, or to upgrade the infrastructure – including dormitories, libraries, laboratories and so on – of existing ones. For example, the International Finance Corporation, a member of the World Bank Group, has partnered with the Saudi German Hospitals Group to build new facilities in Egypt and Yemen as part of a regional strategy to improve healthcare in the Gulf States. In the United Republic of Tanzania, the Bugando University College of Health Sciences, now called Weill Bugando, will produce a number of health worker cadres as a central part of its mission.<sup>31</sup>

Pharmaceutical companies, including Bristol-Myers Squibb, Merck and Pfizer, are investing in human and capital infrastructure to improve access to diagnosis and treatment for HIV/AIDS, malaria and tuberculosis. National business coalitions against HIV/AIDS are building important coalitions to support a strengthened response to the epidemic in dozens of countries.<sup>32,33</sup> Merck, in collaboration with the International Council of Nurses, has developed and distributed an important mobile library for health workers.<sup>34</sup>

There are significant opportunities to build on examples like these, as well as similar programmes supported by companies in other areas of the private sector, to marshal skills and resources that can fill gaps in the education and training of health workers throughout Africa. The Global Health Initiative of the World Economic Forum and the Global Business Coalition Against AIDS, TB and Malaria are key focal points in the effort to build the business response. Working together with partners in communities and in the public sector, the private sector will continue to have an important role to play in scaling up to meet the health worker shortage.

## **A 10-year plan for scaling up the education and training system for health workers**

The focus of the 10-year plan set out in the table below is on building responsive national and regional education and training systems worldwide. It is intended as an example to assist countries and educational institutions in scaling up the production of health workers. Based on evidence from around the world and on the guiding principles and strategies outlined in this chapter, the plan aims to produce short-, medium- and longer-term results, and have an impact on health outcomes.

The relative importance given to each outcome, and the target numbers of health workers and institutions, will be determined by each country, based on its goals, needs and existing resources. The magnitude of scale-up trends and their timeframe for implementation will be different, even among countries in the same region.

But every country will want to achieve some 'quick wins'. The immediate focus of any plan must be to reduce the high rates of attrition among healthcare students and teachers, and to train more trainers. Consultation among stakeholders in a country will be important in deciding what other 'quick wins' to pursue, but those that produce measurable outcomes on their own, as well as laying the groundwork for future developments, might be a priority.

The 10-year plan is aligned with and develops the World Health Assembly 2006 Resolution 59.23 on the rapid scaling up of health workforce production, which urged Member States to affirm their commitment to, among other things, the use of innovative approaches to teaching, including the use of ICTs; promoting education and training in accredited institutions; and promoting partnerships between institutions in industrialized and developing countries, with exchanges of faculty and students.

The 10-year plan can lead to a measurable impact on health outcomes. The table below illustrates the relationship between the education and training strategies, scale-up outcomes and health outcomes.

	Quick wins (1–2 years)	Medium-term outcomes (3–5 years)	Long-term outcomes (5–10 years)
<b>Strategies</b>			
Reduce attrition among students and teachers, and improve accessibility	Implement support systems and admissions processes to reduce student and teacher attrition		
Integrate pre-service and in-service education	Develop and sustain coordinated needs- and competency-based continuing education programmes for all cadres		Provide high-quality, integrated in-service education and training
Develop common educational platforms for different types of health workers		Develop curriculum from competency-based principles that reflect country health plans	Implement new curriculum through public-, private- and community-based actors
Move learning to the community, using modular education and action learning		Incorporate distributed and modular education principles into curriculum	
Increase use of ICTs	Improve existing ICT infrastructure; use ICTs to expand teachers' reach	Explore and deliver opportunities for broad, multi-purpose distance education	
Improve education through quality assurance programmes	Implement quality assurance and accreditation processes	Complete first round of accreditation  Use collaboratives to spread ongoing quality improvement activities	Maintain ongoing quality assurance activities  Establish national or regional quality assurance systems
Build institutional capacity	Improve existing infrastructure (classrooms, laboratories, libraries). Maximize use with after-hours or year-round courses	Plan and construct new infrastructure in existing higher education institutions	Build and open new higher education institutions
Expand teaching capacity	Increase number of qualified teachers  Use re-skilled health workers as classroom- or community-based teaching staff	Achieve and sustain country-specific increase in qualified teachers through recruitment and continuous professional development	

	Quick wins (1–2 years)	Medium-term outcomes (3–5 years)	Long-term outcomes (5–10 years)
<b>Strategies</b>			
Foster twinning and partnerships	Develop institutional linkages (South–South and North–South)		Establish regional networks of institutions
Maximize impact through regional approaches	Implement improvement collaboratives to examine and guide change	Create regional resource centres to capture epidemiological and management data to inform health policy and health workforce education needs  Regional centres to provide technical support for development plans, monitor outcomes and share learning	Develop knowledge management capacity to promote quality health interventions
Harness public–private partnerships	Create policy and regulatory environment for private sector engagement in pre- and in-service education and training	Provide training through a managed mix of public and private (for-profit and non-profit) providers	
<b>Scale-up outcomes</b>			
More community health workers	Larger community health worker classes complete pre-service education and enter workforce		
More mid-level cadres		Larger mid-level classes complete pre-service education and enter workforce	
More high-level cadres			High-level cadres complete pre-service education and enter workforce
<b>Health outcomes</b>			
	MDG 6: combat HIV/AIDS, malaria and other diseases	MDG 4: reduce child mortality  MDG 5: improve maternal health	Chronic disease management: address obesity, addictions, heart disease and other public health issues



# What international action is needed to implement change?

# 6

## Summary

Numerous policy commitments have been made at global and regional levels by health ministers and country leaders to improve health systems, including scaling up production of health workers. There are also many examples of country-level action. Given these commitments, why isn't more happening to improve the crisis in human resources for health through a significant expansion in the education and training of health workers?

There are three issues:

- Few countries have, to date, provided the necessary political support and leadership needed to make addressing the issue a national priority.
- High-level political commitment has not always been followed by the financial support necessary from the international community.
- The country-level support that is offered from the international community is usually not well coordinated or harmonized and therefore not as effective as it could be.

Several new international coordination mechanisms applying the Paris Declaration principles to health, in the context of country plans and priorities, provide an important opportunity.

This chapter focuses on how international partners, including global health initiatives, can better support countries that are committed to achieving a large-scale increase in their health workforce, through education and training, including:

- increasing and sustaining financial investment in pre-service education and training;
- harmonizing and coordinating policies and programmes at country level, to support country scale-up plans;
- fostering shared learning and dissemination of best practices among countries as they scale up;
- creating international 'enabling structures' to support countries to improve quality of education and training; and
- committing to review future global needs for health workers and implications, to manage the effects of health worker migration and to increase domestic production.



## Aid architecture and coordinated in-country support

*It is very, very frustrating having so many people working in different ways on the issue of human resources for health. Let us have a work plan, and work with all the stakeholders together, in a coordinated way.*

**Bience Gawanas,  
African Union  
Commissioner for  
Social Affairs, and  
Co-Chair of the  
Task Force**

The growing degree of involvement by development partners in human resources, set out in chapter 2, is extremely positive but it raises two questions: is the funding and support enough, and is it as effective as it could be? Nonstrategic support and a lack of coordination and coherence of funds are among the main risks to the effectiveness of international support. However, there is clear scope, and emerging global consensus, on better coordinated, joint action on human resources for health – at an international level as well as in countries. The World Health Assembly 2006 resolution 59.23 emphasizes the need for this.<sup>1</sup>

At their 2007 meeting, in a plea for coordinated action in Africa, African health ministers called upon development partners, including multilateral agencies, bilateral development partners and other partners in Africa's development, to contribute to a coordinated response – to maximize the benefits and help prevent fragmentation and duplication. In particular, the ministers requested that partners 'build their health contributions around the Africa Health Strategy',<sup>2</sup> and align financial and technical assistance and cooperation plans with national and regional priorities and plans, including sector-wide approaches. Countries in other parts of the world have made similar requests.

The beginnings of a response among donors and development partners is emerging, with a broad consensus among donor countries and agencies on the scope for better coordination of aid and technical assistance for health, and much more effective and efficient use of existing funds. The 2005 Paris Declaration committed signatories to reform the delivery and management of aid, in the context of the Millennium Development Goals (MDGs), tackling issues of ownership, alignment, harmonization, results orientation and mutual accountability.<sup>3</sup>

In 2007, G8 leaders committed to enhance coordination of bilateral and multilateral health partnerships with national health strategies, and to work with international partners, such as the World Bank, WHO, African Development Bank, the African Union and others, to support country-driven harmonization processes. The G8 also pointed to the need for donors to improve the efficiency of the increasing national and international funding.<sup>4</sup>

A study in Rwanda, for example, found that administration accounted for 27% of total government and donor expenditure on health, due to the high costs of dealing with donor requests and 'missions' from overseas.<sup>5</sup> There are already significant resources available through bilateral, multilateral and vertical funds, but there is considerable scope to reduce duplication and waste, coordinate funding and other assistance and better learn from experience through evaluation.

Another danger is that the available funds end up concentrated in some countries, while others are neglected. Some countries therefore experience serious coordination issues while others suffer a more acute lack of resources. There is some indication this is already happening. The table opposite shows seven countries receiving funds and support from three or more of the listed initiatives, which have some focus on strengthening health systems and human resources for health.



### Concentration of global health initiatives

	Ethiopia	Kenya	Mozambique	United Republic of Tanzania	Rwanda	Zambia	Cambodia
IHP	x	x				x	x
GHWA Pathfinder	x					x	
Doris Duke		x	x	x	x	x	
Catalytic Initiative	x	x	x	x			x
PEPFAR	x	x	x	x	x	x	
GAVI HSS	x	x			x	x	x

### Coordinating mechanisms

In this context, a number of 'coordinating' mechanisms and partnerships have been established, with the aim of improving the effectiveness and coherence of health funding within countries, aligned to country health plans and focused on health systems and human resources. The umbrella Global Campaign for the Health MDGs, launched in September 2007,<sup>6</sup> brings together a number of initiatives involving a range of bilateral and multilateral partners, including the global health funds and UN agencies, as well as the Bill & Melinda Gates Foundation. The campaign aims to put Paris Declaration principles into practice and to reflect some of the wider principles agreed at G8 and the African Union to support country-led action towards attaining the health-related MDGs and strengthening health systems. It includes the following:

- Deliver Now for Women and Children: a Global Business Plan for Maternal and Newborn Health, initiated and led by the Prime Minister of Norway
- Catalytic Initiative to Save a Million Lives, which is focused on reducing under-five mortality, led by CIDA and UNICEF
- The International Health Partnership (IHP), launched by the United Kingdom's Prime Minister, which aims to improve the way international agencies, donors and countries work together in developing and implementing national health plans
- The Providing for Health Initiative, led by France and Germany, which aims to improve sustainable and equitable financing structures for health systems.

Japan's focus on issues related to development and Africa, including the health-related MDGs, health systems and human resources for health, under its G8 Presidency in 2008 has also provided a context for improved coordination.

### What is needed at the international level?

To achieve a massive increase in the global health workforce will require a coordinated and coherent international effort, with a focus on scaling up education and training.

Success will depend on international support and cooperation, as well as national leadership. Although national governments will determine their own policies and their own pace of change, there are particular areas where countries may need support from international partners.

*We recognize that more aid is needed... but we also recognize that more aid itself is insufficient. One of the biggest challenges we face is to devise, organize and manage healthcare as a whole, not just curing individual diseases, but to build overall healthcare systems that will serve the generations. Today we agree as donors to support national healthcare plans and poor countries' health systems.*

**Gordon Brown,  
Prime Minister,  
United Kingdom**

## **Increase and sustain financial investment in pre-service education and training**

Scaling up requires a very big increase in dedicated funding for education and training and for the subsequent employment of increased numbers of staff. The costs in each country will be determined by an assessment of need, including factors such as staff numbers, staff mix and pay. Although the starting point is support from within the country itself, support is also needed from development banks and development partners. This is addressed in chapter 7.

International partners, including the global health initiatives and nongovernmental organizations, also need to commit to redirecting funding from in-service to pre-service training and providing financial backing for scaling up education and training, sharing in-service training capacity, including staff and infrastructure, to help develop the overall health workforce. The salaries paid to health workers are an important determinant of the jobs they take. Donors should consider harmonizing the pay policies for the health workers they employ with government pay levels for equivalent health workers.

In some countries, funding from disease-specific programmes can constitute a large proportion of the health budget and lead to unintended consequences, such as an overspecialized workforce focusing on specific health problems and reduced staff for general healthcare facilities.

Therefore, all international funders, including the major vertical health programmes and other donor countries, need to be engaged as part of this international effort. Several, such as GAVI and the Global Fund, have developed funding mechanisms to address strengthening health systems. Sharing staff and infrastructure, as PEPFAR is beginning to do in some countries, will also help build capacity in the health workforce overall and could be developed further.

However, there is considerable scope to do more to support the overall expansion of the health workforce, to meet country health priorities and to reduce the wastage spent on duplication and focused in-service training, which can remove staff from the workforce for periods of time.

## **Harmonize and coordinate policies and programmes at country level to support country scale-up plans**

There is wide recognition of the need to ensure that support and investment in countries is coordinated and strategic and aligned to country health plans. Existing coordination mechanisms, such as the umbrella Global Campaign for the Health MDGs, provide a context for this.

However, there is scope for international organizations working in a country to strengthen health systems and build the health workforce, by improving their efficiency through better coordination and cooperation, and by aligning their education and training programmes with country health plans and priorities. This will help produce tangible results at country level and long-term sustainable capacity in the health workforce and infrastructure.

Organizations need to have a 'single conversation' with the country government – with accountability and reporting mechanisms based on a single set of in-country-generated information, and in the context of the agreed country plan. Appropriate accountability processes will be important for all partners.

Although there are several coordination mechanisms internationally, there is also a need for 'coordinating' bodies at country level. While sector-wide approaches may provide a mechanism for this in many countries, in some it might be an annual meeting of interested parties on health workforce training. Similarly, the Global Health Workforce Alliance (GHWA) could take a lead in coordinating health workforce partners internationally, perhaps through an international meeting of interested parties.

International coordinated action and support to strengthen the education and training capacity in developing countries can also include, for example, enhancing regional, South–South and North–South cooperation, engaging in joint research efforts on human resources for health, facilitating twinning arrangements, exchange programmes and other forms of cooperation between universities to help develop capacity at institutional and individual levels, and offering international scholarships for health students<sup>7</sup> (see also chapter 5).

### **Foster shared learning and dissemination of best practices among countries as they scale up**

Many countries have already made human resources for health a high priority and are considering how to increase their production of health workers. In most countries, there is a gap between the aspirations and goals for scale-up and available funding (see also chapter 7).

Focused financial support is needed for countries wishing to scale up their health workforce through, for example, existing international coordinating mechanisms such as the IHP, the Doris Duke pilots or the health system strengthening windows of the vertical funds.

Countries with critical health workforce shortages who see scale-up as a priority need to be supported in implementing the Task Force proposals over a 10-year period, using a quality improvement model with shared learning, evaluation and dissemination of practice. This includes coordinated financial and technical support to fit with country-identified needs.

Evidence-based improvements are needed rapidly, on a large scale, and involving several countries. There is also a need for more evidence but not the time to wait for lengthy research. With facilitated and funded coordination for continuous learning, countries could build on best practice and, with rapid feedback mechanisms, share developments and evaluation as they progress. Over the longer term, research in developed and developing countries will also be useful.

The collaborative model used by the Institute for Healthcare Improvement provides an innovative strategy for taking improvements to scale and a suitable change methodology.<sup>8</sup>

*There is not a need for a new international body – human resources should be integrated into existing ones. Nothing can be done without people.*

**Sheila Tlou MP,  
former Minister of  
Health, Botswana**

*Many new initiatives have been launched... all these activities need a health system and warm bodies to carry out the work.*

**Francis Omaswa,  
Global Health  
Workforce Alliance**

Quality improvement models represent a low-cost way of rapidly collecting and disseminating evidence, while actively making improvements in human resources development. Such a model could be used at a national level, within countries, but also with a regional element to share practice between countries as they develop and implement their plans. Collaboratives have been widely used in developed country health systems and have brought about substantial improvements in workforce retention and recruitment. Several African countries have also implemented improvement collaboratives, with financial support from donors such as USAID, and reported credible and significant improvements in healthcare indicators.<sup>9</sup>

Such coordinated action and 'real-time' learning might reside within existing frameworks, such as the IHP, but also link to GHWA. Countries and partners with a key role in delivering education and training for health workers might come together in a 'delivery and implementation group', for example, with representatives of IHP partner agencies, developing countries and development partners and GHWA Pathfinder countries.

### **Create international 'enabling structures' to support countries to improve quality of education and training**

International 'enabling structures' are needed to help countries develop quality standards for service, accreditation systems for education and training, centres of excellence, and indicators of progress appropriate to the needs of the country.

A robust evidence base upon which to make decisions is also needed. Available information on what works is improving, and lessons learnt from existing programmes need to be developed and communicated. A number of health workforce observatories are already being established around the world to provide a network for consensus building, catalyzing and coordinating action and sharing information.

As chapters 5 and 8 show, there is also a need for international enabling structures and support from international organizations, such as WHO and UNESCO, to help develop systematic methods to achieve quality control. In particular, support could be developed to assist national governments in developing standards and accreditation systems, and to improve the quality of education and training as well as service provision.

Identifying data and information sources and baseline data, as well as indicators to measure progress and success, are also a key early action during country scale-up. There is a dearth of indicators on health workforce or education and training of health workers. Many of the global partnerships now have a strong focus on results, with the need for an established measurement framework and indicators that can be monitored to demonstrate progress in improving health outputs and outcomes. Evaluation of progress is also needed as countries scale up, so that lessons, including both process and outcome, can be shared. This is an area for global collaboration, and international organizations have a key role to play.

## **Commit to review future global needs for health workers and implications, to manage the effects of health worker migration and to increase domestic production**

There is a need for a review of future global needs for health workers, with implications for training and education, and policies to manage the effects of health worker migration.

As part of the solution to addressing the global shortage of health workers, it is important that developed countries look at increasing production and self-sufficiency of their own health workforce. For example, countries such as Norway have already begun to forecast their longer-term needs and establish policies to address this. Developed countries need to take a leadership role in mobilizing assistance to support the scale-up of the health workforce in those developing countries that are particularly hard-hit by emigration. The European Commission and OECD have also begun to look at the effects of health worker shortages and migration.

In the developing world, the shortages are severe already. The available evidence shows that even in the absence of migration, this dearth would exist in sub-Saharan Africa, and this is true for the entire developing world.<sup>10</sup>

To consider the best global options, an international dialogue is needed to review likely global needs, including education and training, as well as effective national policies to address the shortfalls.

There is a need for international agreements on how to manage the flows and effects of migration of health staff from developing countries, between all countries, with an emphasis on shared responsibility between developed and developing countries to address the challenges of health worker education.

## **Continued coordination**

There is also a need for continued international attention and coordination on scaling up education and training of health workers, at both international and country levels. GHWA provides a global focal point for the health workforce, and it is critical that the focus on scale-up and education and training is not lost. There is a need:

- to ensure international support for countries to implement the proposals in this report;
- to enable countries to use the critical success factors at country level and the guiding principles and strategies in education and training, and to use the learning from successes in other countries to inform the new scaling-up programmes;
- to facilitate shared learning and good practice, and improve provision of education and training in a collaborative way; and
- to build country capacity to monitor progress for accountability purposes.

This will need the support of international partners and donors working together with countries in a sustained effort. The Task Force envisages that GHWA will have a continuing leadership role in this work.

*Great healthcare is not possible without an inspired and capable workforce, trained to meet the community's needs. Excellence in the workforce goes hand in hand with quality of training and care.*

**Don Berwick,  
Institute for  
Healthcare  
Improvement,  
Cambridge,  
United States**





# The cost of producing and employing health workers

# 7

## Summary

Using the African Region as an example, this chapter provides an economic analysis of the costs of educating, training and employing health workers.

It highlights that:

- dedicated funding is needed for scaling up education and training and, in most cases, to support the employment of staff;
- national governments, development partners and international organizations all need to contribute to this funding; and
- funding levels need to be country-specific and based on an analysis of all the factors affecting costs – such as the numbers and mix of staff, salary levels, training costs and attrition rates – and policy decisions about the trade-offs between them.

At the aggregate level, the Task Force has calculated that, if the status quo is maintained and there are no changes in either the skill mix of the health workforce or the way education and training is delivered, it will cost about an extra US\$26.4 billion, or an estimated US\$2.64 billion each year over a 10-year period (over and above current growth in health expenditure) to educate and train the 1.5 million extra health workers that the World Health Organization (WHO) has estimated are needed in the African Region. The costs of employment would be additional to this.

However, as *Scaling Up, Saving Lives* shows, there is a need, and the potential, to do things differently. There is enormous scope for countries to reduce overall costs substantially, by implementing the measures recommended in this report.

Reductions in costs could be achieved through changes in skill mix to focus more on community- and mid-level workers, reductions in attrition and greater efficiency – for example in the way in which international organizations work together and coordinate their activities. These changes would all improve the efficiency and effectiveness of education, training and delivery.

The International Monetary Fund (IMF), national governments and development partners need to provide a supportive environment that recognizes the contribution that health improvement makes to overall economic and social development, and the contribution that health workers make to improved health outcomes.

This chapter describes in broad terms the level of funding needed to educate, train and employ the additional health workers needed in the African Region. Accurate costs will need to be determined on a country-by-country basis. However, as *Scaling Up, Saving Lives* shows, there is already ample evidence of the need and scope for urgent international action.





## Massive scaling up requires massive funding

A massive scaling up of health workers requires both considerable funding and an enormous political commitment from developing countries and their partners. Both will have to be sustained over the long term, and complex trade-offs will be necessary.

The political commitment and the subsequent funding needs to be based on a good understanding of the economic case for investment in health, as described in chapter 2.

The situation in each country is different, and the pace and policies of scale-up will be determined by each country's own government. In economic terms a whole range of issues must be considered, including:

- the numbers and mix of health workers needed;
- the costs of education and training, including the need for capital investment;
- the costs of employing more health workers on a continuing basis; and
- the impacts on the country's labour market and on other sectors of the economy, and the availability of suitable people for training.

This chapter uses an economic analysis of WHO's African Region – broadly, sub-Saharan Africa – to illustrate the cost of producing and employing health workers. This study was undertaken by the World Bank as part of its contribution to the Task Force for Scaling Up Education and Training for Health Workers.<sup>1</sup> Earlier chapters recommend that countries develop 10-year plans for scaling-up, which for many would be fully implemented by 2020 if work began now. However, this chapter sets out scenarios for the 10-year period from 2005 to 2015, because the most recent financial data available, which is used as a baseline, is from 2005.

### Projection of health expenditure in the African Region

Table 1 illustrates three different scenarios for the ways in which total health expenditure, both public and private, in the African Region may change in the decade between 2005 and 2015. It recognizes that countries across the region are striving to achieve economic growth and that they made a political commitment in 2001 to allocate at least 15% of total annual government expenditure to the improvement of the health sector.<sup>2</sup>

The best-case scenario assumes 5% economic growth per annum and achieving the targeted 15% government spending on health by 2015, while the worst case assumes a decline of 5% in both the size of the economy and in the amount of government expenditure on health. The projection of current trends reflects a continuation of what actually happened during the decade from 1996 to 2005.<sup>1</sup>

**Table 1: Health expenditure scenarios**

Scenario	Annual economic growth (%)	Public health expenditures as % of government expenditures by 2015 (%)
Best case	5	15
Projection of current trends	Country-specific average growth from 1996 to 2005	Country-specific average health expenditure from 1996 to 2005
Worst case	-5	-5 change

The implications of the different scenarios in terms of the total resource envelope available to the health sector are major. If all the countries in the African Region were to achieve the best-case scenarios, healthcare resources would increase year by year, more than doubling from US\$27 billion in 2005 to US\$57.5 billion in 2015 (see Table 2 below). The worst-case scenario, reflecting a slowdown in economic growth and lack of political commitment, could lead to a 41% drop in overall resources (from US\$27 billion to US\$15.8 billion). The projection of current trends leads to an increase in total health expenditure of 57% or US\$15.4 billion (from US\$27 billion to US\$42.4 billion).

**Table 2: Health expenditure by 2015 in the African Region**

	Total health expenditure (US\$ billion)	Per capita health expenditure (US\$ per person, per year, weighted by population)*
Baseline (2005)	27.0	36.7
Best case	57.5	63.1
Projection of current trends	42.0	46.5
Worst case	15.8	17.0

\*Total population for 2005 was estimated at 736 million, and the projection for 2015 is 911 million.

The best-case scenario is very unlikely. Although GDP in the majority of countries is growing, it is at a slower pace than the desired 5%. Only six countries surpassed the target of achieving a 5% increase in per capita economic growth rate between 2000 and 2005. At the same time, about a dozen countries experienced negative growth.<sup>1</sup>

Moreover, by 2007 only four countries – Burkina Faso, Liberia, Malawi and Rwanda – were spending at least 15% of the annual government budget on the health sector. While about half the countries in the region are moving towards this target, the rest have experienced erosion in political commitment to public spending on healthcare.<sup>1</sup>

### The cost of employing health workers in Africa

Within this context of health sector financing, estimating the number of workers that could be employed in a given country requires complex trade-offs among normative targets, expressed needs, competing priorities and economic

affordability. Here, for illustrative purposes, examples are given based on the existing labour cost structure (i.e. assuming that the ratio of the wage bill to total healthcare costs remain fixed) and existing skill mix.

Allowances have been made for population growth, which would affect per capita ratios over time. Table 3 shows the estimated numbers of staff that could be employed under the different health expenditure scenarios.

**Table 3: Projected staffing levels in 2015 using different country resource envelope levels**

	Total staff (millions)	Additional staff (millions)
Baseline 2005	1.6	0.0
Best case	3.3	1.7
Projection of current trends	2.2	0.6*
Worst case	0.8	-0.8
Assumptions: fixed labour cost ratio, no wage change and no skill mix shift		

\*The actual figure on current trends would be 648,000.

In 2005, there were about 1.6 million people employed as health workers in the African Region and the total annual health expenditure was US\$27 billion.<sup>1</sup> On the projection of current trends, it would be financially possible for an additional 648,000 health workers to be employed from country resources in the African Region on a continuing basis for a total of 2.2 million. The proportion of annual health expenditure spent on health workers varies greatly by country, but this model assumes that, overall, the proportion remains the same. It also assumes that the current skill mix of health workers is maintained.

In the best-case scenario, if total health expenditure increases to US\$57.5 billion in 2015, the number of health workers employed could rise by an additional 1.7 million (from 1.6 million to 3.3 million). In the worst case scenario, however, the number of health workers that could be employed would fall by 800,000 (from 1.6 million to 800,000).

WHO identified a current need for an additional 1.5 million health workers in the African Region in order to meet a minimum standard of health services (figures extrapolated from the *World Health Report 2006*\*).<sup>3</sup> This represents a need to almost double the health workforce (from 1.6 million to 3.1 million). Under current financial trends, only about 650,000 additional health workers could be employed, leaving a significant shortfall (about 850,000). Even under a best-case health expenditure scenario, which is very unlikely, only the employment costs of 1.7 million additional health workers would be affordable.

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\*The *World Health Report 2006* estimated a global shortage of 4.3 million health workers. This represents a shortage of 2.4 million doctors, nurses and midwives, multiplied by 1.8 the average ratio of total health workers – including community- and mid-level health workers, and management and other support staff – to doctors, nurses and midwives). The equivalent extrapolation for Africa means that there is a total shortage of 1.5 million health workers in the African Region alone.

None of the scenarios covers the costs of education and training. Therefore, significant additional funding will be needed, under all scenarios, for the scale-up of the health workforce to meet a minimum standard of health services.

The actual figures vary from country to country, with South Africa, for example, accounting for 108,000 and Democratic Republic of the Congo for 75,000 of the total 648,000 increase projected on current trends. The total in this scenario for countries receiving World Bank support through the International Development Association (IDA) would be 427,000, with 221,000 for the countries not receiving this support.

It is evident, therefore, that different countries will require different levels of financial support to reach their 2015 health worker targets. Some may be able to employ most of the additional workers they need from projected resources. Most will not.

### **The cost of educating and training health workers**

Financial means to employ additional health workers will be pointless without the funds available to educate and train them. The cost of pre-service education often comes out of the Ministry of Education rather than the Ministry of Health's budget.<sup>4</sup> Wherever possible, detailed country-level analyses have been used in this study, to estimate the cost of scaling up the pre-service education and training of the additional health workers needed.

In general, the annual cost of educating and training doctors is about five times that for community health workers, and two times that for nurses. There is, however, considerable variation in costs between countries and some differences in the costing methodology. These figures must therefore be seen only as indicative of the likely cost levels and be treated with some caution.

In the African Region, the average attrition rate of students in the health professions is 30%. The migration rate of high-level graduates such as doctors, pharmacists, nurses and public health workers is 19%.<sup>5</sup> Therefore, any calculation of costs needs to take into account that most countries have to educate and train a significantly higher number of students than their end-target for scaling up of health workers.

Using these assumptions, and no change in skill mix from the current situation, it would cost a projected total of about US\$26.4 billion to educate and train the extra 1.5 million health workers that WHO estimates are needed to provide a minimum standard of service to the African Region.

If these 1.5 million health workers were to be trained over a 10-year period, it would cost about an extra US\$2.64 billion per year, if the total costs were divided equally over each of the 10 years.\*

### **The cost of infrastructure**

Assessing the overall investment needed to strengthen existing education and training facilities and build new infrastructure is even more dependent on the particular circumstances of the country. Recent pre-investment studies by the

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\*In reality, one would not expect the total costs to be divided equally over each of the 10 years.

World Bank in Ghana, Liberia, Rwanda and Sierra Leone, for example, indicate that the cost could easily range from US\$10 million to US\$50 million. In some larger countries this cost can be even higher, such as Nigeria with an estimated cost of US\$100 million.<sup>1</sup>

Costs vary depending on existing staffing levels and educational facilities, and the desired capacity of the education and training programmes. The state of the infrastructure impacts on costs as well; in post-conflict countries such as Liberia and Sierra Leone, the destroyed infrastructure must be rebuilt, for example.

## Doing things differently – and improving value for money

The earlier discussion describes the financial ability of African countries to employ more health workers and the likely costs of producing them through education and training, based on varying factors. Through both national and international action, there is enormous scope for increasing the number of health workers that countries can educate, train and employ, over and above these figures.

Traditional approaches have not worked and, as *Scaling Up, Saving Lives* shows, there is a need, and the potential, to do things differently. Several countries are leading the way, with changed skill mix and staffing models designed to meet their specific health needs, along with new and innovative approaches to education and training. Both can offer improved affordability and value for money.

This section looks at the trade-offs between different expenditures available to countries and international agencies in order to achieve the goal of scaling up the education, training and employment of more health workers. It addresses a range of options in four main areas: staff mix, innovations in delivering education and training, improvements in service management and greater collaboration and investment from international agencies. (See chapters 3, 4, 5 and 6 for more details of the Task Force's proposals in these four areas.)

**Staff mix:** The analysis presented is based on the assumption that staff mix remains constant (that is, the same as it is now). Data on this in Africa is very poor, and varies by country. However, it is acknowledged that paraprofessionals, including community- and mid-level workers, are probably not being utilized as much as in other contexts, such as Brazil for example.<sup>6</sup> The evidence for the impact of these cadres on health outcomes is outlined in chapter 4, and the Task Force recommends a massive increase in community- and mid-level health workers alongside the expansion of education and training for more specialized health professionals.

The economic analysis supports this. It is possible to more than double the number of staff a country can afford to employ, simply by varying the mix of staff groups. The World Bank's analysis shows that if there were a greater concentration on community health workers, the number of additional staff that could be employed for the same funding under the current trends scenario might increase – from about 650,000 to more than 900,000. In contrast, if there were a greater concentration of doctors, the additional number of health workers who could be employed for the same funds decreases to less than 400,000.

If there were a greater concentration on community health workers, the number of additional staff that could be employed for the same funding under current trends might increase from about 650,000 to more than 900,000.

**Innovations in delivering education and training:** The costs of delivering education and training may be reduced in many ways, through, for example, reducing attrition rates during training; employing a more ICT-based approach; redesigning the system so that it is more locally based; and taking a more regional approach, including establishing regional centres and sending students to lower-cost destinations abroad (see chapter 5).

**Improvements in service management:** There are also obvious areas in the health system where improved management would increase efficiency of operation. Improving working and employment conditions in order to reduce the 'push' factors that lead staff to migrate, would involve cost. However, a significant reduction in migration of the most highly trained workers from the current rates of 19% would reduce the overall education and training numbers and the costs associated with turnover. Efficiencies can be gained through increasing and improving management and leadership capacity in all areas, from logistics to human resources.

Closer collaboration with nongovernment sector providers of all kinds, including faith-based, private sector and individual practitioners, can also benefit operations (see chapter 3).

**Greater collaboration and investment from international agencies:** The international community also faces some decisions in order to achieve maximum efficiency in delivering increases in educated, trained and employed health workers (see chapter 6). For instance, closer collaboration, better coordination and greater investment in pre-service education will reduce waste and effectively earmark funds for scaling up the health workforce. International action to reduce the impact of migration and manage its consequences is an area being addressed in detail by the Global Health Workforce Alliance's (GHWA's) Health Worker Migration Policy Advisory Council.

The need to do things differently – and improve value for money – is confirmed by Richard Scheffler and colleagues in a paper on forecasting the global shortage of health workers, which estimates the differences between what is needed and what can be afforded, based on traditional assumptions. The gap can only be closed through the sort of actions described in this report.<sup>7</sup>

## **National and international economic policy**

National and international economic policy will determine what scope, in practice, health ministers have for action. Frequently, their biggest issue is to get their government – and the Finance Minister in particular – to support their plans.

This support is not always forthcoming. Indeed, there is evidence in some countries that as international aid grows, the total resources available for health stays the same or declines.<sup>1</sup> There are also concerns in many countries that the International Monetary Fund (IMF) and the world monetary framework militate against adequate investment in health.



Health ministers will need to:

- demonstrate the impact that improving health will have on their country economically and socially, using both international and local studies;
- establish good joint-planning arrangements with the finance and other ministries and together use the economic modelling described in this chapter; and
- demonstrate good management as well as good planning – showing that the country's health system has the ability to implement plans efficiently and effectively.

The role of the IMF, the World Bank and regional development banks in contributing to or constraining the overall resource envelope available to the health and other social sectors, has been the topic of intense debate since the adjustment era of the 1980s. Today, achieving the Millennium Development Goals (MDGs) is a central mission of the World Bank and many of the other international finance institutions. All are firmly committed to ensuring that fiscal policies contribute to both economic growth and poverty alleviation.

However, there is still a widespread perception that IMF policies inhibit employment in the health system and in some cases have actually led to the reduction of staffing and consequent worsening of services. The health and other social sectors comprise a large and increasing share of the public budget. They are, therefore, particularly vulnerable to changes in fiscal policy.

Given the importance of overall economic growth on the total resource envelope available to the health sector, any sectoral policy that increases the size of the labour force or wage bill in the public sector must be carefully managed to ensure that it is consistent with overall fiscal policy.

Against this background, it is clear that – at the very least – there needs to be better communication and understanding of the relative roles of the IMF and national governments and that health and education ministers need to be involved in fiscal policy discussions. It is also essential that the IMF explores all possibilities for providing greater flexibility with its partners.

A concerted international effort to scale up the education and training of health workers – and thereby improve the health and economic capacity of populations – requires a supportive international economic environment.

As the analysis in this chapter shows, more financial support is needed. The world's rich countries have repeatedly committed to increasing their development assistance budget to 0.7% of gross national product (GNP). First pledged in a 1970 General Assembly Resolution, the 0.7% target has been affirmed in many international agreements over the years, including the March 2002 International Conference on Financing for Development in Monterrey, Mexico, and at the World Summit on Sustainable Development held in Johannesburg later that year. However, as of June 2005 only five of the 22 donor nations had met or exceeded the 0.7% target: Denmark (0.84%), Luxembourg (0.81%), the Netherlands (0.80%), Norway (0.92%) and Sweden (0.79%). Six other countries have committed to reaching this target before 2015: Belgium, Finland, France, Ireland, Spain and the United Kingdom.<sup>8,9</sup>



## Next steps

Increasing the number of health workers on the scale necessary to address the global shortfall, requires a very large increase in dedicated funding for education and training and, in many developing countries, some funding for the employment of the extra staff.

This funding needs to come from all the relevant parties – the national government, development partners and all international organizations, including nongovernmental organizations, that work in the country.

It also requires an economic environment – created on the national level by finance ministers and on the international level by the IMF – that supports long-term development and recognizes the role improved health can play in the social and economic development of a country.

This chapter has described in broad terms the level of funding needed to educate, train and employ the additional health workers needed in the African Region. These cost estimates are broadly consistent with those produced by the Commission on Africa, which called for annual aid for health to be increased by US\$20 billion by 2015.<sup>10</sup> The *World Health Report 2006* recommends that 50% of all development aid for health should be spent on strengthening health systems, with 50% of that figure spent on emergency health workforce plans.

Accurate costs can only be determined on a country-by-country basis, and will be influenced by the policies of the country's government on all the relevant issues such as staff mix, pay rates, health worker attrition and so forth.

The GHWA Health Financing Task Force will build on this analysis to create a more detailed model for calculating costs, assessing the overall costs of scaling up the education and training health workers and supporting the increased employment levels. This work will need to look at the profile of spend and the longer-term management of increased education and training capacity overall, as well as implications for countries.

However, as *Scaling Up, Saving Lives* shows, there is ample evidence of the need and the scope for urgent action to be taken internationally, even before detailed financial calculations have been made.



## Summary

Case studies have shown that as countries scale up the education and training of health workers, they use the information available to assess their needs, develop plans and set targets. Monitoring and evaluation is key to measuring progress – by countries, institutions and international partners – against scale-up plans, and requires good information systems.

This ideally involves accurate and timely data from health, education and labour markets. In many cases, strengthening these reporting systems is fundamental to scaling up, and to measuring progress and the impact of efforts and investments.

The following broad principles for monitoring progress are applicable across all countries.

- Use and build upon existing in-country monitoring processes, information systems and established indicators and benchmarks, and align these within countries. For example, there may be established mechanisms to evaluate progress in implementing health workforce plans.
- Fully utilize data sources from education, health and labour markets, reflecting the nature of education and training of health workers.
- Follow the SMART principles (specific, measurable, attainable, relevant and time bound) for baseline data collection, for ongoing measurement of each process and outcome indicator, and for analysis of progress against periodic targets and strategic objectives.

This chapter proposes specific indicators designed to be useful to national governments, education and health bodies and development partners. The indicators have been developed to reflect the detail of the proposals in *Scaling Up, Saving Lives*, and facilitate joint accountability. They build on existing country systems and complement earlier recommendations and indicators for human resources for health, including those from the Global Health Workforce Alliance (GHWa). They are important because what gets measured is more likely to get done.

International support is also needed in the development of systems to measure progress, and health workforce observatories could provide a forum for exchange of data from different sectors to support evidence-based policy making.



## Developing information systems

In most parts of the world, health workforce information systems are inadequate, and the ability to track education and training is particularly weak. A 2004 study by WHO Regional Office for Africa showed that 22% of Ministry of Health workforce departments did not have computer facilities, 45% had no electronic mail access, and fax machines were available in only 32% of the surveyed departments.<sup>1</sup> Another study, supported by the Health Metrics Network, found that tracking the output of health education institutions was the weakest link among a set of core health workforce indicators.<sup>2</sup>

*A main message is that there is inadequate information on the health sector, and a need for more work on indicators and benchmarks in the longer term. This presents an opportunity to build research infrastructure within institutions ... to invest in research on the direct impact of human resources for health on health outcomes.*

**Delanyo Dovlo,  
World Health  
Organization**

Even a modest investment in strengthening health workforce information systems could, therefore, yield significant returns. Rigorous monitoring and evaluation, as well as building national and regional capacity in information, need significant investment. In the context of improving the health system generally, the International Health Partnership, for example, has recommended that between 5 and 10% of the overall scale-up funds should be set aside for monitoring performance, evaluation, operational research and strengthening health information systems.<sup>3</sup>

The data and information to measure scale-up of the health workforce need to be integrated into existing census, survey and administrative register instruments. However, at present, most of the latter focus on a few health occupations, underreporting many other occupations that contribute to the delivery of health services. Health workforce observatories are being established around the world to assist in developing and standardizing information systems.

At an international level there is a need for indicators monitoring not only the level of international support on strengthening health systems, but also its appropriateness, coordination and effectiveness, as reflected in the principles of the Paris Declaration on Aid Effectiveness. Harmonized monitoring and evaluation efforts can also help ensure that commitments on accountability and impact by development partners are translated into functional, strengthened information systems within countries. The Health Metrics Network is coordinating work to this end.<sup>4</sup>

Overall, however, there are few current international benchmarks for human resources for health.

### Useful indicators and benchmarks at national level

Chapter 3 sets out the critical success factors for scaling up the education and training of health workers at a country level. The following table suggests some potential indicators and benchmarks for each of these factors. Some use objective quantitative data; others are more qualitative. They build, in particular, on the indicators recommended in the Douala Plan of Action, which was adopted at a GHWA sub-regional conference in June 2007.<sup>5</sup>

Critical success factors	Potential indicators and benchmarks
Political commitment, including sustained government involvement and support	<p><i>Indicator:</i> Existence of an operational national human resources for health strategic plan, appropriate budget allocation, synergy with broader ministry and government priorities.</p> <p><i>Benchmark:</i> Explicit objectives, indicators and targets relating to health workforce planning and development laid out in the plan and referred to in broader umbrella documents (e.g. health sector plan, PRSP).</p>
Collaboration around a country-led health plan	<p><i>Indicator:</i> Existence of a coordinating mechanism to lead development, implementation and monitoring of the national human resources for health plan.</p> <p><i>Benchmark:</i> Regular meetings and consultations between stakeholders steering plan implementation. A functional and resourced unit to implement the plan.</p>
Significant financial investment	<p><i>Indicator:</i> Existence of an operational budget for implementation of the national health workforce strategic plan. Additional governance indicators include, for example, percentage of health budget allocated to training health workers by the Ministry of Health and Ministry of Education, percentage of development assistance used for the health workforce. For example, the <i>World Health Report 2006</i> recommends devoting 50% of all international health aid to health systems, with half of that funding devoted to strengthening the health workforce.</p> <p><i>Benchmark:</i> Use of budget is itemized, secured and tracked at the national and sub-national level.</p>
Commitment to short-term and long-term health workforce planning	<p><i>Indicator:</i> Existence of a national human resources for health strategic plan with data from information systems utilized in rigorous modelling of current and future health needs and health worker requirements, with plans based on these.</p> <p><i>Benchmark:</i> Explicit short- and long-term objectives, indicators and targets relating to health workforce planning and development set out. Decision-making processes in each of the strategic areas for scaling up education and training for health workers influenced by evidence.</p>
Commitment to produce appropriately trained health workers to meet health needs	<p><i>Indicator:</i> Production of a variety of health worker cadres, changes from historic (supply-led) proportions of different workers, use of community- and mid-level workers.</p> <p><i>Benchmark:</i> Targets for particular cadres (number or proportion of total health workforce).</p>

Critical success factors	Potential indicators and benchmarks
Significant expansion of pre-service education and training programmes	<p><i>Indicator:</i> Educational expansion can be measured using a number of indicators (e.g. number of new teachers or students; percentage increase in number of entrants compared with last academic period, by type and level of training). Existence of an accreditation agency for health education and training institutions.</p> <p><i>Benchmark:</i> Targets set out in national human resources for health plan. National or sub-regional capacity to perform self- and external evaluations of existing health educational institutions, ensuring a transparent and accurate accreditation process based on agreed standards (professional licensing, qualification and regulation for different cadres).</p>
Good information systems for health workforce and education, with monitoring and evaluation	<p><i>Indicator:</i> Existence of an information and monitoring system that produces timely and consistent data for monitoring the indicators and targets outlined in the national human resources for health strategic plan.</p> <p><i>Benchmark:</i> Information and monitoring system populated with comprehensive data at the sub-national and national levels, and validated and updated on a regular basis (e.g. quarterly/annually).</p>
Effective management and leadership	<p><i>Indicator:</i> Existence of health service management and training programmes, and size of intakes.</p> <p><i>Benchmark:</i> Targets set out in national human resources for health plan.</p>
Labour market capacity and policy to absorb and sustain an increase in health workers	<p><i>Indicator:</i> Health labour market absorption can be monitored using quantitative indicators on deployment and retention (e.g. unemployment and underemployment rate by occupation).</p> <p><i>Benchmark:</i> Targets set out in national human resources for health strategic plan.</p>

## Education and training indicators

Chapter 5 sets out guiding principles and strategies for education and training of health workers, in the context of a suggested 10-year plan. In planning and implementing the scale-up of health worker education and training, both the capacity and output of institutions and courses need to be considered, to be able to identify and address specific bottlenecks. For example:

- at a basic level, it is important to know how many people are being trained and what types of health worker, and their characteristics (including pre-service and in-service training);
- the quantity and type of annual output need to be aligned to current and future requirements, especially if reforms are being considered; and
- the equitable distribution of health workers, their cultural and linguistic appropriateness, whether the skills gained in training are meeting needs, their responsiveness to clients and their productivity, can all be measured.



The table below describes a set of suggested indicators to measure progress against the education and training strategies in the example 10-year scale-up plan (see page 61).

Education and training strategies	Potential indicators
Reduce attrition among students and teachers, and improve accessibility	<p>Percentage of entry students who graduate.</p> <p>Teacher/student ratios.</p> <p>Proportion of students recruited from rural and disadvantaged populations.</p> <p>Proportion of health workers recruited from their own communities.</p>
Integrate pre-service and in-service education	<p>Percentage of health workers with demonstrable competencies in meeting population health needs.</p> <p>Percentage of continuing education and training programmes that align with country health plan and reduce time waste.</p>
Develop common educational platforms for different types of health worker	<p>Percentage of health worker education and training institutions with increased emphasis on public health and primary care competencies for all health worker cadres, aligned with community health needs.</p> <p>Percentage of institutions with inter-professional education and training strategies.</p>
Move learning to the community, using modular education and action learning	<p>Proportion of education and training occurring in community settings.</p> <p>Number of opportunities for students to participate in action learning activities that develop skills and competencies in supervised clinical settings.</p>
Increase use of information and communication technologies	<p>Percentage use of information and communication technologies to deliver library resources and learning opportunities on demand.</p> <p>Proportion of lectures delivered using interactive distance-based technologies, and percentage use of distance learning methods in pre-service and in-service education and training.</p>
Improve education through quality assurance programmes	<p>Number of institutions with a quality assurance programme.</p> <p>Percentage of health worker institutions that are accredited by a recognized accreditation body (national or regional).</p> <p>Proportion of graduating students who pass national certifying or licensing standards.</p>
Build institutional capacity	<p>Number of training places for each type of health worker.</p> <p>Proportion and capacity of institutions with education and training programmes that are aligned with country health workforce scale-up plans.</p> <p>Total budget for education and training for health workforce, and proportion that is aligned to the country health plan, coordinated and sustained.</p>

Education and training strategies	Potential indicators
Expand teaching capacity	Number of qualified teachers and trainers. Proportion of health workers who have also been trained to teach.
Foster twinning and partnerships	Number of twinned institutions, networks and partnerships with defined objectives that support developing country needs.
Maximize impact through regional approaches	Number of regional centres and collaboratives for shared education and research in human resources for health, health systems strengthening and management.
Harness public–private partnerships	Proportion of education and training provided by private and other nongovernment sectors. Amount of investment by private and other nongovernment sector providers in education and research, and proportion of total budget.
<b>Scale-up outcomes</b>	
More community health workers	Number of primary healthcare teams with a broad range of competencies, which systematically include community health workers, to improve access, reach out to vulnerable groups and mobilize community networks. Percentage of existing health workers who have upgraded their skills.
More mid-level cadres	Number of enrolled nurses, midwifery assistants, clinical officers and health technicians who provide first-level referral and supervision for community health workers.
More high-level cadres	Number of nurses, midwives, public health officers and medical officers, etc., who provide referral support and supervision for mid-level and community health workers.  Number of trained managers who provide management expertise for effective operation of the health system.  Total density of health workers per head of population.

Potential data sources for these indicators include the Ministry of Education, Ministry of Health, education and training institutions and professional bodies. However, data are often of poor quality or not widely available, and many countries do not keep data on the capacity of education and training institutions.

Education and health ministries may have some data on pre-service budgets or on numbers of workers trained. Education and training institutions may have data on physical, technical and operational capacity, but this is often not formally kept. Similarly, they may have year-on-year data on the recruitment and selection of students, but applications are not always archived and statistics on the process often not gathered or analysed.

Professional boards usually collect certification and licensing information, although this may contain information only from the public sector and is not always up to date. In addition, the lack of unique personal identification numbers makes it difficult to track individual students and health workers when they move up the cadre ladder, from enrolled nurse to registered nurse, for example.

### **Health workforce observatories**

Currently, health workforce observatories exist in various countries in Africa, the Americas and the Eastern Mediterranean Region. They provide a single mechanism to improve information and knowledge and to facilitate dialogue for policy development and monitoring, and can help bring together researchers, policy makers, service providers and managers. Observatories can contribute to:

- developing national capacity for evaluation and monitoring of the health workforce situation and trends;
- providing information and evidence for the formulation of human resources for health development policies, strategies and plans;
- providing a forum for partnership, sharing of experience and advocacy in human resources development; and
- facilitating dialogue and the use of health workforce data for informed decision-making at all levels of the health system.

### **Measuring impact on health outcomes**

The ultimate goal of scaling up the health workforce is to contribute to improved health outcomes. The health Millennium Development Goals (MDGs), namely MDG 4 to reduce child mortality, MDG 5 to reduce maternal mortality, and MDG 6 to combat HIV/AIDS, malaria and other diseases, along with reductions in chronic disease, are outcome targets.

Because many of the intermediate indicators for the MDGs also relate directly to contacts with healthcare providers, they could be used as a proxy for scaling up the health workforce.

For example, the intermediate indicators for MDG 5 include:

- percentage of pregnant women with any antenatal care; and
- percentage of births with skilled birth attendant and/or institutional delivery.

The intermediate indicators for MDG 6 include:

- percentage of patients with a sexually transmitted infection who are appropriately diagnosed and treated; and
- percentage of patients with uncomplicated malaria who receive treatment within 24 hours of onset of symptoms.

## Conclusion

The shortage of health workers is a global problem. *Scaling Up, Saving Lives* sets out proposals for concerted action on a massive scale to make sure everyone has access to a suitably trained and motivated health worker as part of a functioning health system. It recommends that:

- national governments draw up and implement 10-year scale-up plans;
- education and training curricula are focused on the health needs of the country, are community- and team-based, and institutions make greater use of innovative means to increase education and training capacity; and
- development partners and international organizations provide dedicated long-term funding for education and training, with much better coordination and cooperation.

Strong information systems are needed on human resources for health and health worker education and training to support the development of plans and to measure progress on all these levels – by countries, institutions and international partners. Strengthening information systems, drawing from both education and health sectors, and government as well as institutions, are a priority.

# References

## Chapter 1 Scaling up: A vision for the future

1. World Health Organization (2006) *World Health Report 2006: working together for health*. WHO, Geneva.
2. Matthews Z, Channon A and Van Lerberghe W (2006) Will there be enough people to care? Notes on workforce implications of demographic change, 2005–2050. Background paper prepared for the *World Health Report 2006*. WHO, Geneva.
3. Joint Learning Initiative (2004) *Human resources for health: overcoming the crisis*. Harvard University Press, Cambridge, MA.
4. Crisp N, Gawanas B, Sharp I (2008) Training the health workforce: scaling up, saving lives. *Lancet*, 371: 689–91.
5. Fifty-ninth World Health Assembly (2006) *Rapid scaling up of health workforce production*, World Health Assembly Resolution WHA59.23. WHO, Geneva.
6. Organization for Economic Cooperation and Development (2007) Immigrant health workers in OECD countries in the broader context of highly skilled migration, Part III of *International Migration Outlook 2007*. OECD. [www.oecd.org/els/migration/imo](http://www.oecd.org/els/migration/imo)

## Chapter 2 Meeting the challenges

1. World Health Organization (2005) *Preventing chronic diseases: a vital investment*. WHO, Geneva.
2. World Health Organization (2002) *Global burden of disease (GBD), 2002 estimates*. [www.who.int/healthinfo/bodgbd2002/en/index.html](http://www.who.int/healthinfo/bodgbd2002/en/index.html)
3. Jamison DT, Bloom DE, et al. (1998) *Health, health policy, and economic outcomes*. UCLA Center for Pacific Rim Studies, Los Angeles, CA.
4. Wagstaff A (2002) Health spending and aid as escape routes from the vicious circle of poverty and health. Health, Nutrition & Population discussion paper. World Bank, Washington, DC.
5. World Bank (2001) *World development report 2000/2001: Attacking poverty*. World Bank and Oxford University Press, Oxford.
6. World Bank (1993) *World development report 1993: Investing in health*. World Bank and Oxford University Press, New York.
7. World Bank (1997) Sector strategy for Health, Nutrition & Population. World Bank, Washington, DC.
8. World Health Organization (2000) Health systems: measuring performance. WHO, Geneva.
9. Sachs, JD (2001) *Macroeconomics and health: investing in health for economic development*. WHO, Geneva.
10. Dreesch N, Dolea C, Dal Poz MR, et al. (2005) An approach to estimating human resource requirements to achieve the Millennium Development Goals. *Health Policy and Planning*, 20(5): 267–76.
11. McKinsey Group (2003) Achieving GAVI's immunization goals. GAVI board meeting. McKinsey & Co, New York.
12. Travis P, Bennett S, Haines A, et al. (2004) Overcoming health-systems constraints to achieve the Millennium Development Goals. *Lancet*, 364: 900–06.

13. World Health Organization (2002) *Multi-country evaluation of IMCI effectiveness, cost and impact*. Progress report WHO/FCH/CAH/02.16. WHO, Geneva.
14. DfID, UNICEF, USAID and WHO (2003) *The analytic review of the Integrated Management of Childhood Illness Strategy*. WHO, Geneva.
15. Anand S, Bärnighausen T (2004) Human resources and health outcomes: cross-country econometric study. *Lancet*, 364: 1603–09.
16. Anand S, Bärnighausen T (2007) Health workers and vaccination coverage in developing countries: an econometric analysis. *Lancet*, 369: 1277–85.
17. Zurn P, Vujicic M, Diallo K, et al. (2005) Planning for human resources for health: human resources for health and the production of health outcomes/outputs. *Cah Sociol Demogr Med*, 45(1): 107–33.
18. Speybroeck N, Kinfa Y, Dal Poz MR, Evans DB (2006) *Reassessing the relationship between human resources for health, intervention coverage and health outcomes*. WHO, Geneva. [www.who.int/hrh/documents/reassessing\\_relationship.pdf](http://www.who.int/hrh/documents/reassessing_relationship.pdf)
19. World Health Organization (2007) *Everybody's business: strengthening health systems to improve health outcomes: a framework for action*. WHO, Geneva.
20. Marmot M (2005) Social determinants of health inequalities. *Lancet*, 365: 1099–1104.
21. Oxfam International (2007) *Paying for people: financing the skilled workers needed to deliver health and education services for all*. Oxfam Briefing Paper 98. Oxfam International, Oxford.
22. Joint Learning Initiative (2004) *Human Resources for Health: Overcoming the crisis*. Harvard University Press, Cambridge, MA.
23. Fifty-ninth World Health Assembly (2006) *Rapid scaling up of health workforce production*, World Health Assembly Resolution WHA59.23. WHO, Geneva.
24. Pan American Health Organization (2005) *Toronto Call to Action, 2006–2015: Towards a decade of human resources in health for the Americas*. Pan American Health Organization, Washington, DC.
25. Pan American Health Organization (2007) *Regional goals for human resources for health 2007–2015*. 27th Pan American Sanitary Conference: 59th Session of the Regional Committee. Washington, DC.
26. WPRO (2007) *Regional strategy on human resources for health, 2006–2015*. WHO Regional Office for the Western Pacific, Manila.
27. SEARO (2006) *Dhaka declaration on strengthening health workforce in the countries of South-East Asia Region*. WHO Regional Office for the South-East Asia Region, New Delhi.
28. EURO (2007) *Draft resolution: health workforce policies in the European Region*. WHO Regional Office for Europe, Copenhagen.
29. African Union (2007) *Johannesburg Declaration of the 3rd ordinary session of the African Union Conference of Ministers of Health*. Johannesburg, South Africa.
30. Global Health Workforce Alliance (2007) *Douala Plan of Action*. GHWA, Geneva.
31. Third Session of the African Union Conference of Ministers of Health (2007) *Africa Health Strategy: 2007–2015*. African Union, Addis Ababa, Ethiopia.
32. Palmer D (2006) Tackling Malawi's human resources crisis. *Reproductive Health Matters*, 14(27): 27–39.
33. World Bank (2007) *Healthy development: the World Bank strategy for health, nutrition, and population results*. World Bank, Washington, DC.



34. G8 Summit 2007, Heiligendamm, Germany, 6–8 June 2007. *Growth and responsibility in Africa: summit declaration*.
35. European Commission (2007) *A European programme for action to tackle the critical shortage of health workers in developing countries (2007–2013)*. Commission of the European Communities, Brussels.
36. The Global Campaign for the Health Millennium Development Goals (2007) Norad, Oslo, Norway. [www.norad.no/default.asp?V\\_ITEM\\_ID=9263](http://www.norad.no/default.asp?V_ITEM_ID=9263)
37. The Directorate for Health and Social Affairs (2007) *Recruitment of health workers: towards global solidarity*. SHdir, Oslo.
38. Salsberg E (2008) *Addressing healthcare workforce issues for the future*. Position statement presented to the Committee on Health, Education, Labor, and Pensions (HELP) of the United States Senate. Association of American Medical Colleges, Washington, DC.
39. Wanless, D (2002) *Securing our future health: taking a long-term view*. HM Treasury, London.

### Chapter 3 Country-led action towards a national road map

1. Secretary of Education and Labour Management (2006) *PROFAE: Nursing workers professionalizing*. Ministry of Health, Brasilia, Brazil.
2. World Health Organization (2004) *Pakistan's Experience in lady health workers (LHWs) programme*. Regional Committee for the Eastern Mediterranean, EM/RC51/12.
3. Oxfam International (2007) *Paying for people: financing the skilled workers needed to deliver health and education services for all*. Oxfam Briefing Paper 98, Oxford, UK.
4. Pan American Health Organization (2007) *Regional goals for human resources for health 2007–2015*. 27th Pan American Sanitary Conference: 59th Session of the Regional Committee. Washington, DC.
5. Regional Office for Africa (2004) *Report on human resources for health status in WHO Africa Region*. WHO Regional Office for Africa, Brazzaville, Congo.
6. International Health Partnership – A global 'compact' for achieving the health millennium development goals. London, United Kingdom. 2007.
7. The Global Campaign for the Health Millennium Development Goals (2007) Norad, Oslo, Norway. [www.norad.no/default.asp?V\\_ITEM\\_ID=9263](http://www.norad.no/default.asp?V_ITEM_ID=9263)
8. Second High Level Forum on Aid Effectiveness (2005) *Paris declaration on aid effectiveness: ownership, harmonisation, alignment, results and mutual accountability*. Paris, France.
9. Martinez J (2006) *Implementing a sector wide approach in health: the case of Mozambique*. HLSP Institute, London, United Kingdom.
10. Republic of Malawi Ministry of Health (2007) *Human resources/capacity development within the health sector*. Needs assessment study, GTZ, Malawi.
11. Ministry of Health and Social Welfare (2007) *Draft human resources for health strategic plan*. United Republic of Tanzania.
12. Update on the International Health Partnership and related initiatives (IHP+). Prepared for the Health 8 Meeting, 28 January 2008, Geneva.
13. African Union (2001) *Abuja Declaration on HIV/AIDS, tuberculosis and other related infectious diseases*. [www.un.org/ga/aids/pdf/abuja\\_declaration.pdf](http://www.un.org/ga/aids/pdf/abuja_declaration.pdf)
14. *Health Sector Development Plan 2005/6–2009/10*. Ministry of Health, Ethiopia.



15. National Rural Health Mission (2005–2012) *Mission document*. Delhi, India.
16. Islam MT, Haque YA, Waxman R, et al. (2006) Implementation of emergency obstetric care training in Bangladesh: lessons learned. *Reproductive Health Matters* 2006, 14(27): 61–72.
17. Guruz K (2004–2005) *Higher education and international student mobility in the global knowledge economy*. Manuscript prepared for the Weatherhead Center for the International Affairs Fellows Program of Harvard University, and the Chancellor John W. Ryan Fellowship in International Education of the State University of New York.
18. Conway MD, Gupta S, Khajavi K (2007) Addressing Africa's health workforce crisis. *The McKinsey Quarterly*. [www.mckinseyquarterly.com](http://www.mckinseyquarterly.com)
19. O'Brien-Pallas L, Baumann A, Donner G, et al. (1998) *Health Human Resources: An Analysis of Forecasting Models*. Canadian Nurses Association, Ottawa.
20. Bloor K, Maynard A (2003) *Planning human resources in health care: towards an economic approach*. Canadian Health Services Research Foundation, Ottawa.
21. Pan American Health Organization (2006) *Mission Barrio Adentro: the right to health and social inclusion in Venezuela*. [www.ops-oms.org.ve/bvs/tex-electronicos/BA/BA\\_ENG\\_TRANS.pdf](http://www.ops-oms.org.ve/bvs/tex-electronicos/BA/BA_ENG_TRANS.pdf)
22. Second ordinary session of the Conference of African Ministers of Health (2005) *Gaborone declaration on a roadmap towards universal access to prevention, treatment and care*. African Union, Addis Ababa, Ethiopia.
23. Third Session of the African Union Conference of Ministers of Health (2007) *Africa Health Strategy: 2007–2015*. African Union, Addis Ababa, Ethiopia.
24. *Human Resources Policies and Strategies for the Health Sector, 2007–2011*. Ministry of Health, Ghana.
25. Earth Institute at Columbia University's Centre for National Health Development in Ethiopia, Health Extension Program. <http://cnhde.ei.columbia.edu/programs/hep/>
26. *Reversing the trends: the second national health sector strategic plan of Kenya 2005–2010*, Ministry of Health, Republic of Kenya.
27. Capacity Project and WHO (2007) Human Resources for Health Action Framework. [www.capacityproject.org/framework/](http://www.capacityproject.org/framework/)
28. Withanachchi N, Handa Y, Karandagoda KKW et al. (2007) TQOM emphasizing 5-S principles: a break-through for chronic managerial constraints at public hospitals in developing countries. *The International Journal of Public Sector Management*, 20(3): 168–77.
29. World Economic Forum's Global Health Initiative. [www.weforum.org/en/initiatives/globalhealth](http://www.weforum.org/en/initiatives/globalhealth)
30. Pan American Health Organization (2007) Regional goals for human resources for health 2007–2015. 27th Pan American Sanitary Conference. 59th session of the Regional Committee. Washington DC, USA, 1–5 October 2007.
31. Levine R and Vujicic M (2007) *A labour market view of the African health worker shortage: policy issues*. A background paper prepared for the Global Health Workforce Alliance Task Force for Scaling up Education and Training for Health Workers by the Center for Global Development and the World Bank.
32. PHRplus and the Republic of Kenya (2006) *Stepping up health worker capacity to scale-up services in Kenya*. ABT Associates Ltd, Bethesda, MD.

## Chapter 4 What types of health worker should be scaled up?

1. Joint Learning Initiative (2004) *Human Resources for Health: Overcoming the crisis*. Harvard University Press, Cambridge, MA.
2. World Health Organization (2006) *World Health Report 2006: Working together for health*. WHO, Geneva.
3. Fifty-ninth World Health Assembly (2006) *Rapid scaling up of health workforce production*, World Health Assembly Resolution WHA59.23. WHO, Geneva.
4. Conway M, Gupta S, Khajavi K (2007) Addressing Africa's health workforce crisis. *The McKinsey Quarterly*. [www.mckinseyquarterly.com](http://www.mckinseyquarterly.com)
5. Sachs JD (2001) *Macroeconomics and health: investing in health for economic development*. WHO, Geneva.
6. African Union (2007) *Africa Health Strategy: 2007–2015*. Addis Ababa, Ethiopia.
7. Article 6 Declaration of Alma-Ata. International Conference on Primary Health Care, Alma-Ata, USSR, September 1978.
8. African Medical Relief Foundation (2007) *People first: African solutions to the health worker crisis*. AMREF UK, London.
9. Oxford Policy Management (2002) *External evaluation of the National Programme for Family Planning and Primary Health Care*. Quantitative Survey Report. Lady Health Worker Programme, Islamabad, Pakistan.
10. Lehmann U, Sanders D (2007) *Community health workers: what do we know about them?* A report by the School of Public Health, University of the Western Cape. WHO, Geneva.
11. Haines A, Sanders D, Lehmann U, et al. (2007) Achieving child survival goals: potential contribution of community health workers. *Lancet*, 369(9579): 2121–31.
12. Bang AT, Bang RA, Baitule SB, et al. (1999) Effect of home-based neonatal care and management of sepsis on neonatal mortality: field trial in rural India. *Lancet*, 354(9194): 1955–61.
13. Lewin SA, Dick J, Pond P, et al. (2007) *Lay health workers in primary and community health care*. The Cochrane Collaboration.
14. Addressing the urgent human resource constraint for health in Africa: scaling up community health worker programs. Post-conference summary note (2007) Earth Institute, Nairobi, Kenya.
15. Dovlo D (2004) Using mid-level cadres as substitutes for internationally mobile health professionals in Africa. *Human Resources for Health*, 2: 7.
16. Mullan F, Frehywot S (2007) Non-physician clinicians in 47 sub-Saharan African countries. *Lancet*, 370 (9605): 2158–63.
17. Lin Y, Franco LM (2000) *Assessing malaria treatment and control at peer facilities in Malawi*. Quality assurance project case study published for the US Agency for International Development by the Quality Assurance Project. Bethesda, MD.
18. Bergstrom S (2005) Who will do the caesareans when there is no doctor? Finding creative solutions to the human resource crisis. *BJOG*, 112(9): 1168–69.
19. Frick D, Foster A, Bah M, et al. (2005) Analysis of costs and benefits of the Gambian Eye Care Program. *Arch Ophthalmol*, 123: 239–43.
20. Hongoro C, McPake B (2004) How to bridge the gap in human resources for health. *Lancet*, 364(9443): 1451–56.

21. World Health Organization (2008) *Task shifting, global recommendations and guidelines*. WHO, Geneva.
22. Kurowski C, Wyss K, Abdulla S, et al. (2007) Scaling up priority health interventions in Tanzania: the human resources challenge. *Health Policy and Planning*, 22: 113–27.
23. Organization for Economic Cooperation and Development (2007) Immigrant health workers in OECD countries in the broader context of highly skilled migration, Part III of *International Migration Outlook 2007*. OECD. [www.oecd.org/els/migration/imo](http://www.oecd.org/els/migration/imo)
24. Egger D, Ollier E (2007) *Managing the health Millennium Development Goals – the challenge of management strengthening: lessons from three countries*. WHO, Geneva.
25. Gupta SD, Dash PC, Kanjilal B (2005) *Strengthening district health system through management interventions*. Indian Institute of Health Management Research, India.
26. World Health Organization (2007) *Towards better leadership and management in health: report on an international consultation on strengthening leadership and management in low-income countries*. Health Systems Working Paper No. 10. Accra, Ghana.

## Chapter 5 How to build strong education and training systems

1. Gaziano TA, Galea C, Reddy KS (2007) Scaling up interventions for chronic disease prevention: the evidence. *Lancet*, 370: 1939–46.
2. Lehmann U, Andrews G, Sanders D (2000) *Change and innovation at South African medical schools – an investigation of student demographics, student support, and curriculum innovation*. Research Programme, Health Systems Trust, South Africa.
3. Pan American Health Organization (2006) *Mission Barrio Adentro: The right to health and social inclusion in Venezuela*. Pan American Health Organization, Caracas.
4. Majoor G (2004) Recent innovations in education of human resources for health. A Joint Learning Initiative: Human resources for health and development. *Working Paper 2–3*.
5. Harvey SA, Blandon YCW, McCaw-Binns A, et al. (2007) Are skilled birth attendants really skilled? A measurement method, some disturbing results and a potential way forward. *Bulletin of the World Health Organization*, 85: 783–90. [www.afdb.org](http://www.afdb.org)
6. Wenger EC, Snyder WM (2000) Communities of practice: the organizational frontier. *Harvard Business Review*, January/February: 139–45.
7. Crisp N (2007) *Global Health Partnerships: the UK contribution to health in developing countries*. TSO, London.
8. McCannon CJ, Berwick DM, Massoud MR (2007) The science of large-scale change in global health. *Journal of the American Medical Association*, 298: 1937–39.
9. Lugina H (2006) Human resources for health situation analysis in seven ECSA countries. ECSA health community human resources development and capacity building. Commonwealth Regional Health Community for East, Central and Southern Africa. The Capacity Project.
10. Iputo JE, Kwizera E (2005) Problem-based learning improves the academic performance of medical students in South Africa. *Medical Education* 2005, 39: 388–93.
11. de Vries E, Reid S (2003) *Do South African rural origin medical students return to rural practice?* Health Systems Trust. South Africa.
12. Woloshuk W, Tarrant M (2004) Do students from rural backgrounds engage in rural family practice more than their urban-raised peers? *Medical Education*, 38: 259–61.

13. Ghangbade S, Harvey S, Edson W, et al. (2003) *Safe motherhood studies – studies from Benin: competency of skilled birth attendants: the enabling environment for skilled attendance at delivery: in-hospital delays in obstetric care (documenting the third delay)*. Published for the US Agency for International Development (USAID) by the Quality Assurance (QA) Project. Bethesda, MD.
14. Rowe AK, de Seigny D, Lanata CF, et al. (2005) How can we achieve and maintain high-quality performance of health workers in low-resource settings? *Lancet*, 366: 1026–35.
15. Zurovac D, Rowe AK, Ochola SA, et al. (2004) Predictors of the quality of health worker treatment practices for uncomplicated malaria at government health facilities in Kenya. *International Journal of Epidemiology*, 33: 1080–91.
16. USAID (2003) *The health sector human resources crisis in Africa: an issues paper*. USAID, Washington, DC.
17. Amaral J, Leite AJM, Cunha AJLA, et al. (2005) Impact of IMCI health worker training on routinely collected child health indicators in Northeast Brazil. *Health Policy and Planning* 2005 (S1).
18. Pine JB, Victor B, Boynton AC (1993) Making mass customization work. *Harvard Business Review*, September–October: 108–16.
19. Dovlo D (2004) Using mid-level cadres as substitutes for internationally mobile health professionals in Africa. A desk review. *Human Resources for Health* 2004, 2: 7–18.
20. Mullen F, Frehywot S (2007) Non-physician clinicians in 47 sub-Saharan countries. *Lancet*, 370: 2158–63.
21. Hamilton J, Ogunbode O (1991) Medical education in the community. *Lancet*, 338: 99–102.
22. Chetley A (ed) (2006) Improving health: connecting people: the role of ICTs in the health sector of developing countries. A framework paper. [www.infodev.org/en/Document.84.aspx](http://www.infodev.org/en/Document.84.aspx)
23. Ningo NN (2007) Technology in education and training of the health workforce. *Technical Working Group Working Paper* 6.
24. Heller RF, Chongsuvivatwong V, Hailegeorgios S, et al. (2007) Capacity-building for public health. *Bulletin of the World Health Organization*, 85: 930–34.
25. Tavrow P, Kekitiinwa Rukyalekere A, Maganda A, et al. (2002) *A comparison of computer-based and standard training in the Integrated Management of Childhood Illness in Uganda. Operations Research Results*. Published for the US Agency for International Development by the Quality Assurance Project. Bethesda, MD.
26. Materu P (2007) *Higher education quality assurance in Sub-Saharan Africa*. Working Paper No. 124, The World Bank, Washington, DC.
27. UNESCO (2005) *Guidelines for quality provision in cross-border higher education*. UNESCO, Paris.
28. International Pharmaceutical Federation (2000) FIP statement of policy on good pharmacy education practice. [www.fip.org/www2/uploads/database\\_file.php?id=188&table\\_id=](http://www.fip.org/www2/uploads/database_file.php?id=188&table_id=)
29. Boelen C, Boyer MH (2001) *A view of the world's medical schools: defining new roles. Towards Unity for Health*. [www.the-networktuft.org/publications\\_resources/furtherreading.asp](http://www.the-networktuft.org/publications_resources/furtherreading.asp)
30. Bridging the gap and beyond: transitioning from relief to development. *Liberia Health Sector Partnership Forum Report*, 20 March 2007. Ministry of Health, Liberia.
31. Bryan L, Garg R, Ramji S, et al. (2006) *Investing in Tanzanian human resources for health. An HRH Report for the TOUCH Foundation*. McKinsey & Company. [www.touchfoundation.org/documents/Mckinsey\\_Touch\\_HRH\\_Report\\_July\\_2006.pdf](http://www.touchfoundation.org/documents/Mckinsey_Touch_HRH_Report_July_2006.pdf)

32. International Finance Corporation (2007) *The business of health in Africa partnering with the private sector to improve people's lives*. World Bank Group, Washington, DC.
33. Sidhu, IK (2008) *Building coalitions tackling AIDS: a worldwide review*. World Economic Forum, [www.weforum.org/pdf/AM\\_2008/WBC\\_Report.pdf](http://www.weforum.org/pdf/AM_2008/WBC_Report.pdf)
34. Sturchio J (2007) Guest editorial. *International Nursing Review*, 54: 207–8. [www.icn.ch/mobile.htm](http://www.icn.ch/mobile.htm)

## Chapter 6 What international action is needed to implement change?

1. Fifty-ninth World Health Assembly (2006) *Rapid scaling up of health workforce production*, World Health Assembly Resolution WHA59.23. WHO, Geneva.
2. Third Session of the African Union Conference of Ministers of Health (2007) *Africa Health Strategy: 2007–2015*. African Union, Addis Ababa, Ethiopia.
3. Second high level forum on aid effectiveness (2005) *Paris declaration on aid effectiveness: ownership, harmonisation, alignment, results and mutual accountability*. Paris, France.
4. G8 Summit (2007) *Growth and responsibility in Africa: summit declaration*. Heiligendamm, Germany.
5. Republic of Rwanda, Ministry of Finance and Economic Planning and Ministry of Health. (2006) *Scaling up to achieve the health MDGs in Rwanda*. A background study for the high-level forum meeting in Tunis.
6. The Global Campaign for the Health Millennium Development Goals (2007) Norad, Oslo, Norway. [www.norad.no/default.asp?V\\_ITEM\\_ID=9263](http://www.norad.no/default.asp?V_ITEM_ID=9263)
7. The Directorate for Health and Social Affairs (2007) *Recruitment of health workers: towards global solidarity*. Norway, Oslo.
8. Institute for Healthcare Improvement (2004) The breakthrough series: IHI's collaborative model for achieving breakthrough improvement. *Diabetes Spectrum*, 17: 97–101.
9. Heiby J (2007) *An evidence-based model for the rapid improvement of human resources management in Africa*. USAID, Washington, DC.
10. Organization for Economic Cooperation and Development (2007) Immigrant health workers in OECD countries in the broader context of highly skilled migration, Part III of *International Migration Outlook 2007*. OECD. [www.oecd.org/els/migration/imo](http://www.oecd.org/els/migration/imo)

## Chapter 7 The cost of producing and employing health workers

1. Preker AS, Vujicic M, Dukhan Y, et al. (2008) *Scaling up health professional education: opportunities and challenges for Africa*. Paper prepared for the Task Force for Scaling Up Education and Training for Health Workers, Global Health Workforce Alliance. World Bank, Washington, DC.
2. African Union (2001) Abuja Declaration on HIV/AIDS, tuberculosis and other related infectious diseases. [www.un.org/ga/aids/pdf/abuja\\_declaration.pdf](http://www.un.org/ga/aids/pdf/abuja_declaration.pdf)
3. World Health Organization (2006) *World health report 2006: Working together for health*. WHO, Geneva.



4. World Bank (2003) *Cost and financing of education: opportunities and obstacles for expanding and improving education in Mozambique*. [http://siteresources.worldbank.org/AFRICAEXT/Resources/ed\\_cost\\_moz.pdf](http://siteresources.worldbank.org/AFRICAEXT/Resources/ed_cost_moz.pdf)
5. Clemens M and Pettersson G (2008) New data on African health professionals abroad. *Human Resources for Health*, 6: 1.
6. Conway MD, Gupta S and Khajavi K (2007) Addressing Africa's health workforce crisis. *The McKinsey Quarterly*. [www.mckinseyquarterly.com/Health\\_Care/Strategy\\_Analysis/Addressing\\_Africas\\_health\\_workforce\\_crisis\\_2079\\_abstract](http://www.mckinseyquarterly.com/Health_Care/Strategy_Analysis/Addressing_Africas_health_workforce_crisis_2079_abstract)
7. Scheffler R, Liu JX, Kinfu Y, Dal Poz MR (2008) Forecasting the global shortage of physicians: an economic and needs-based approach. *Bulletin of the World Health Organization*, Vol. 86.
8. The United Nations Development Programme. *Tracking the MDGs: global partnership progress*. [www.undp.org/mdg/tracking\\_donorcountryreports2.shtml](http://www.undp.org/mdg/tracking_donorcountryreports2.shtml)
9. The Millennium Project. [www.unmillenniumproject.org/press/07.htm](http://www.unmillenniumproject.org/press/07.htm)
10. Commission for Africa (2005) *Our common interest: report of the Commission for Africa*, Penguin Books Ltd.

## Chapter 8 Measuring success

1. World Health Organization (2006) *World Health Report 2006: Working together for health*. WHO, Geneva.
2. Health Metrics Network (2007) *Health information systems: review and assessment*. Country reports (first wave). [www.who.int/healthmetrics/en/](http://www.who.int/healthmetrics/en/)
3. A common framework for monitoring performance and evaluation of the scale-up for better health. International Health Partnership concept note. Health 8 Meeting, January 2008.
4. Health Metrics Network. [www.who.int/healthmetrics/en](http://www.who.int/healthmetrics/en)
5. Douala Plan of Action. Conference on human resources for health in Africa: experiences, challenges and realities. Douala, Cameroon, 2007. [www.who.int/workforcealliance/PLANDACTION2DOUALA\\_en.pdf](http://www.who.int/workforcealliance/PLANDACTION2DOUALA_en.pdf)





# Country case study summaries

## **Bangladesh: Training health workers to reduce maternal mortality**

Medical doctors and nurses in Bangladesh are concentrated in urban secondary and tertiary hospitals, whereas 70% of the population lives in rural areas. This situation has created a major challenge for the national health system, particularly for reducing the high maternal mortality rate. Fewer than 20% of births are attended by a skilled birth attendant. To address this issue, the Prime Minister signed the Declaration of Safe Motherhood in 1997. A number of national programmes and strategies, such as the Health and Population Sector Programme of 1998 and the National Strategy for Maternal Health of 2000, also supported this declaration.

The government created two nationwide human resource development plans: one to train emergency obstetric care (EmOC) teams to work in district and subdistrict hospitals (336 medical officers and 775 nurses) by 2004, and another to train 17,000 skilled birth attendants to work at community level by 2015. The Directorate General of Health Services manages the two complementary initiatives. However, limited government budgets mean education and training activities require significant technical and financial support from a large number of international partners.

The training approach evolved throughout the EmOC initiative. Medical officers were initially sent to Nepal for training, while capacity was built in Bangladesh. After developing nationally accepted curricula, Bangladesh medical college hospitals took over the training of emergency care providers. Midway through the initiative, a shorter, 17-week, competency-based course was introduced to train emergency care providers in teams, and an orientation programme was launched for facility managers, with an overriding objective to institutionalize competency-based training.

At the community health worker level, family welfare assistants and female health assistants are being trained in a six-month, competency-based course for skilled birth attendants, and are then certified and registered by the Bangladesh Nursing Council.

Plans to employ and retain the EmOC providers were embedded in the EmOC initiative, which included a bonding period at designated facilities after training. However, by the end of 2004, the government had reached only 47% of its training target, and funding for the initiative had decreased. Without increased investment and training capacity, another 20 years would be needed to sufficiently staff all services. In addition, the attrition rate, both within and after the bond period, was about 35%. Major challenges were faced in attracting medical officers, particularly females, to work in remote rural areas, where working conditions are poor and there is no clear path for career advancement after training.

Skilled birth attendants are being trained by an array of partners through separate projects, without any attempt to integrate the courses into the Family Welfare Visitor Training Institutes or Nursing Institutes. At the same time, Nursing Institutes continue to produce nurse-midwives, who are typically not allowed to provide midwifery services. Efforts are needed to link this initiative to the national health strategy, with the goal of improving the education, training and placement of these cadres of workers.

To strengthen management capacity, a joint plan was developed in 2007 between the Government of Bangladesh and WHO to conduct training courses for programme managers at all levels of the health system, as well as provide quarterly monitoring and supervision visits to EmOC staff and skilled birth attendants.

**Note:** Country case studies are available at [www.ghwa.org](http://www.ghwa.org)

## **Brazil: Scaling up for universal access**

In the late 1980s, it was recognized that Brazil's system of specialized, urban-centred, hospital-based medical care was failing to meet the needs of the many families who could not afford, or could not access, services. At the same time, a shortage of vocational schools had led to more than 200,000 workers taking on nursing and technical functions without the qualifications required by law.

In 1988, the government decentralized the national health system with the goal of achieving universal access to primary healthcare for all citizens. To meet the human resource needs of the new system, the Ministry of Health adopted a strategy of training family health teams to provide care for the country's entire population (the Family Health Program). Each team, which looks after 2,000 to 3,500 families, is composed of one physician, one nurse and up to six health aides, such as auxiliary nurses, community health workers and other technical support workers.

The strategy benefits from political commitment that extends to the presidential level and from the strong engagement of the ministries of health and education. A wide group of stakeholders, ranging from international agencies to community associations, supports and ensures its implementation. In 2007, this broad collaboration was strengthened through a Presidential Decree to establish an Inter-Ministerial Commission on Health Professions Education.

A range of policies and programmes, backed by national legal resolutions and significant financial investment, was developed to scale up the health workforce, with a reorientation towards family health. Activities were undertaken to strengthen education, training, regulation and certification of human resources, as well as to monitor labour market trends through human resources observatories. Ambitious objectives were set to upgrade the qualifications of more than 200,000 auxiliary nurses by 2005 (PROFAE) and then to expand this to other technical areas (PROFAPS). The aim was ultimately to establish 40,000 family health teams throughout the country by 2010. To achieve this, the government budgeted more than US\$700 million between 2000 and 2009.

Innovative bidding approaches were used to create new education and training institutions and to influence existing institutions to reorient and strengthen their curricula. With the involvement of municipal- and state-level authorities, proposals were requested for strengthening or building technical schools, both public and private, in every state of Brazil.

Successful projects received funding to develop physical infrastructure, teaching faculty and competency-based programmes for nursing and other technical personnel. At the same time, a national accreditation system was established to assure the quality of the programmes. The government also requested proposals from medical, nursing and dental schools to reorient curricula towards primary healthcare, with a particular emphasis on active student learning at all levels of the health system. In the first round of bidding, more than 90 proposals were selected for substantive financial support.

By 2006, the auxiliary nurse workforce was fully trained and certified. By 2007, approximately 25,000 health teams covered about 60% of the Brazilian population. To better manage the changes promoted by the family health strategy, an additional programme was launched to train 100,000 local health managers to support municipal-level health services.

All new or upgraded workers have been readily absorbed by the health system (public or private) and improved conditions and methods of education have raised morale and retention. However, health workers are still unevenly distributed across the country, and although significant progress has been achieved, the supply is not yet fully meeting needs.

## Ethiopia: The Health Extension Programme

Ethiopia suffers from an acute shortage of health workers at every level, and rural areas, where 85% of people live, have been particularly chronically under-served. In working out the best approach to tackle health workforce issues, the Ministry of Health calculated that 60–80% of the country's annual mortality rate is due to preventable communicable diseases such as malaria, pneumonia and TB. HIV/AIDS is also a growing concern. The Ministry therefore chose to begin by focusing on community-level provision, initiating the Health Extension Programme in 2004. This is outlined in the current Health Sector Development Plan (2005–10), which focuses on both human resource development and the construction and rehabilitation of facilities.

The Health Extension Programme aims to train 30,000 new Health Extension Workers (HEWs) to work at local health posts and to provide a package of essential interventions to meet needs at this level. To train the HEWs, a training-of-trainers approach was used: 700 faculty members were trained in regional workshops by 85 master trainers, and they in turn are now delivering the one-year course. A national network of 37 existing vocational institutes is being used for this purpose. Five thousand additional health officers will be trained by 2009; they will supervise the HEWs and provide more specialist care for those needing referral. Twenty hospitals are currently involved in hands-on training programmes for the health officers.

Some improvement has been observed in health indicators over the last five years; for example, infant mortality in 2005 was 77 per 1,000, down from 97 in 2000. However, this cannot be attributed to the HEWs because the first graduates of the programme were only deployed in 2005. More time is needed before their impact can be fully evaluated.

Scale-up is now being widened to include the expansion of pre-service training capacity for doctors and nurses. Ethiopia aims to increase its annual medical student intake from 250 to 1,000, and in 2007 the new St Paul's Millennium Medical School was opened to assist with this. It will use an accelerated curriculum focusing on training doctors to meet Ethiopia's health needs.

In planning and implementing this phased approach to scale-up, strong political leadership from the Ministry of Health, cross-government cooperation, financial support and effective collaboration with development partners has been essential. The GAVI Alliance Health System Strengthening window and the Global Fund to Fight AIDS, Tuberculosis and Malaria are funding approximately one-third of the Health Sector Development Plan costs, and the Health Extension Programme is included within this. Due to uncertainties regarding financing, three cost scenarios have been modelled: one to fully implement the Health Extension Programme, one to increase the coverage of health centres and one to reach the Millennium Development Goals.

Scale-up efforts include plans to strengthen Ethiopia's health system monitoring and evaluation. Incentive packages, career ladders and training are being included in the Health Extension Programme budget. Early evaluations have analysed HEWs living conditions, resources and supervision – all factors that affect the retention of the health workforce and therefore the maximizing of returns on investment in education and training. Complementary efforts are being made to improve the management of the health system. Through the Civil Service Reform Programme, regional authorities are developing health workforce management plans, and a simultaneous expansion of primary healthcare infrastructure is taking place to ensure there are enough posts to allow newly trained staff to enter the labour force.

## **Ghana: Implementing a national human resources for health plan**

Ghana has recognized the need to address its serious health workforce shortage and consequent issues with health service delivery. A new human resources strategic plan has been developed to guide scale-up from 2007 to 2011. This fits into the broader health-sector plan, which prioritizes health workforce development, increasing access to quality healthcare and tackling malaria and HIV/AIDS. It is also consistent with the President's vision of bringing the country to middle-income status by 2015 – a goal that requires a healthy population. A review of the 2004 programme of work in the health sector found that failure to achieve improved health outcomes was often tied to issues of poor morale and distribution of the health workforce. After an in-country health workforce forum in 2005, the Ministry of Health carried out a needs assessment, which underpins the current plan.

The plan is backed by strong political will and is being implemented jointly by the Ministry of Health and the Ghana Health Service. A particular priority is being placed on the scale-up of mid-level health workers, which is based on experience on the ground and evidence from elsewhere in sub-Saharan Africa demonstrating their cost-effectiveness, improved retention and acceptance of rural postings compared with doctors. Three funding scenarios have been modelled for the plan, allowing for variations in the macroeconomic context and donor behaviour. Funding is provided through the health sector-wide approach but current resources remain insufficient for full implementation.

The Community-based Health Planning and Services (CHPS) programme was initiated in 1999 to place community health officers (typically specially trained enrolled nurses or field technicians) in rural and deprived communities to work with health aides from the community. Given that the aim to serve every district has not yet been met, the new human resources plan includes strengthening this programme. Bottlenecks to overcome include insufficient incentives for staff to accept rural postings and lack of true community ownership.

Training institutions are being encouraged to increase their intakes of all cadres, but without simultaneous increases in available resources this is causing some problems, particularly with class sizes and the availability of tutors. To ensure capacity is available for the scale-up process, accredited private schools are being used for some training, under supervision from regulatory bodies. Practising health workers are being encouraged to take on teaching responsibilities, with budgets provided for books and research. New training sites are planned and over the long-term every hospital is expected to have some training capacity.

Mid-level cadre training is being expanded at the fastest rate. A programme has been initiated to train a new cadre of health assistants to carry out auxiliary tasks. A new programme for medical assistants (previously specially trained registered nurses) has also been implemented, and it now takes school leavers. The goal is to double the output of medical assistants over two years and to give them enhanced and delegated skills to replace some physician functions.

In terms of retention, salary levels are increasing and incentive programmes involving housing and rural bonuses, as well as bonding schemes, are being formulated. In recognition of the importance of effective health-service management, Ghana is working with both the World Economic Forum and World Bank on a health management training programme. The current health workforce strategy also includes plans to strengthen information and monitoring systems. It is too early for the effects of the increase in production of health workers to be felt and evaluated, as students are yet to graduate.

## **India: Scaling up production of health workers to better serve rural populations**

A general shortage of medical and public health personnel in India has been intensified by the poor distribution of health workers throughout the country. More than 80% of India's medical and paramedical professionals work in the for-profit private sector in higher-income urban areas. To increase the number of staff for public health activities in rural areas, the Prime Minister launched the National Rural Health Mission (NRHM) in 2005 and the Public Health Foundation of India in 2006. The government has committed to increase public spending on health from 0.9% of GDP to 2–3% of GDP, in a phased manner, corresponding to the absorptive capacity of the states.

After consultation with stakeholders, and a review of national surveys and studies, the NRHM advisory body developed a strategy and seven-year plan based on three pillars: decentralized planning, community ownership of health services, and intersectoral collaboration. The plan set a goal to produce and recruit more than 700,000 health workers at village and subdistrict level by 2013. The central government will bear the cost of training, incentives and supplies for approximately 400,000 village-level workers. For other activities, funds from international donors, government and private sources will be pooled and managed by state-level resource centres.

NRHM will work with the country's large education and training network of more than 2,400 public and private institutions to strengthen state and district capacities for developing multiple competencies among primary-level workers through in-service training, and for reforming pre-service education to ensure a rural orientation. A national medical education task force was set up to provide recommendations for reforming medical curricula. The government also considered developing alternative shorter courses, such as two- to three-year certificate and diploma programmes for mid-level workers. However, the Medical Council of India Act, which prohibits biomedical practice by anyone not trained through a full university degree, will need to be amended, or a Public Health Act developed, if primary healthcare training is to be expanded to non-university cadres, such as mid-level health workers.

To complement NRHM, the Public Health Foundation of India was created to redress the limited institutional capacity for strengthening training, research and policy development in the area of public health. It is a public–private partnership with multisector government support. The Foundation has estimated that more than 9,000 additional public health professionals would be needed by 2010, requiring a substantial increase in the country's average output of 400 public health graduates per year. The Foundation will accelerate the production of public health graduates by reinforcing existing schools of public health, including the establishment of an accreditation agency, building new institutes of public health, and developing new academic programmes. It will cost about US\$100 million and take five years to establish a network of five to six institutes of public health.

Monitoring and evaluation are fundamental components of both the Foundation and NRHM. The latter also emphasizes the importance of human resource management and retention at all levels of its decentralized framework. By the end of 2006, approximately 700 accountants, business school graduates and information technology (IT) experts had been recruited to state- and district-level programme management units. And a management information system network, linking all districts of the country, had been set up to facilitate the decentralized planning process with IT-enabled monitoring of NRHM's progress. In addition, a number of strategies, such as career-linked incentives for postings in difficult areas, were proposed for recruiting and retaining health workers in rural areas.



## **Kenya: Addressing its health workforce challenges**

Kenya is experiencing an overall deficiency of health workers, but with acute maldistribution between urban and rural areas and between public and private sectors. Although health worker to population ratios in some urban areas are reasonably good, many rural postings are unfilled and a significant number of qualified health workers are unemployed or working in different areas.

Data collected by the Ministry of Health and Social Welfare showed the extent of labour shortages in relation to health-system capacity. These shortages range from 12% for nurses in the faith-based sector to more than 70% for pharmacists in the public sector.

Kenya's second Health Sector Strategic Plan (HSSP) (2005–10) is focused on developing a health system that places a priority on individuals' health needs and a health workforce that is more demand driven. The plan takes an innovative life-cycle approach, aiming to improve continuity of care by grouping interventions according to an individual's needs at each stage of life.

In addition, the plan sets out indicators for measuring progress in several areas, including human resource development. The health ministry is collaborating with various partners, including the Ministry of Education, Science and Technology and training institutions, on a specific health workforce strategic plan.

The aim is to meet the human resource requirements to provide universal access to essential health interventions and services by 2015. The comprehensive package of measures in the health workforce strategic plan includes, among other things, needs assessments, curriculum development to increase pre-service training capacity, and two initiatives that are described in this case study.

Human resource management to improve health worker performance and minimize loss from the system is another particular focus. A process to decentralize programmes and budgets is taking place, which should help with implementation. The Ministry of Health and Social Welfare is working with the Public Sector Reform and Development Secretariat spearheading the introduction of results-based management in the public sector.

Current workforce activities include implementation of the Emergency Hiring Plan (EHP) with PEPFAR and other partners. This is helping to alleviate staff shortages by bringing unemployed health workers back into the system; it has involved the accelerated hiring and deployment of more than 800 health workers to public facilities in areas of particular need.

Another initiative is a computer-based distance education programme to upgrade the qualifications of 22,000 enrolled nurses to registered nurse status. It is being led by the Ministry of Health and Social Welfare in partnership with the African Medical and Research Foundation (AMREF) and Accenture, a global consulting firm.

The results of both have been measurably positive, suggesting that a coordinated and multi-pronged approach to scale-up, owned by political leaders and supported by development partners, can have a concrete impact.

## Malawi: Emergency Human Resources Programme

Human resource shortages in Malawi are among the severest in sub-Saharan Africa, even though political commitment to address the crisis has been strong since the late 1990s. Limited financial support of the country's 1999–2004 human resource development plan prompted the Ministry of Health to focus specifically on pre-service education, with an emergency training plan beginning in 2002.

Shortly afterwards, development partners began to recognize staffing as a key bottleneck that required special attention, and this allowed the Ministry of Health to launch a more comprehensive programme in 2004. The six-year Emergency Human Resources Programme (EHRP) was developed based on a situational analysis, consultation with key stakeholders and lessons learnt from domestic and international experiences concerning working conditions, industrial relations and the use of different cadres.

The EHRP is one of six components of the Joint Programme of Work for the health sector-wide approach (SWAp), drawn up for the period 2004–10; it focuses on retention, deployment, recruitment, training and tutor incentives for 11 priority cadres (doctors, nurses, clinical officers, medical assistants, pharmacists, laboratory technicians, radiographers, physiotherapists, dentists, environmental health officers and medical engineers).

Due to the tight fiscal conditions in Malawi, major funding for the programme comes from the United Kingdom's Department for International Development (DFID), the Global Fund to Fight AIDS, Tuberculosis and Malaria, and the health SWAp. Despite traditional donor concerns regarding the sustainability of funding salaries, partner support includes salary top-ups due to the acute need to improve retention, along with other incentive measures and the cost of training itself. The non-profit Church Health Association of Malawi is providing a significant proportion of training places.

The initial goal of the EHRP is to scale-up staffing to Tanzanian levels, which are below WHO minimum standards but thought to be a more attainable goal. The programme includes both short-term 'quick wins' and longer-term interventions. The former includes attracting unemployed or retired staff back into service, the use of expatriate staff to fill gaps temporarily, and the initiation of salary top-ups and in-service incentives, particularly for rural services (housing, transportation, priority for professional development training and so on).

Scaling up of pre-service training is a longer-term goal, as the impact is not felt immediately due to training lag-time. The plan is to expand overall pre-service training capacity by 50%. A detailed model links staffing targets for the priority cadres with current recruitment and training levels.

The EHRP is reviewed twice a year and the intention in 2008 is to adjust the targets to focus on implementation of the Essential Health Package. The plan includes the strengthening of information and monitoring systems, and some preliminary results are available to demonstrate the programme's impact. There is, for example, some evidence to suggest a reduction in nurse migration and an increase in medical school applications, potentially due to improved future salaries. Management capacity remains an issue within the health system, and four zonal support offices have been established to improve supervisory structures.



## **Pakistan: The Lady Health Worker Programme**

Pakistan's health sector is characterized by urban–rural disparities and an imbalance in the health workforce, with insufficient numbers of health managers, nurses, paramedics and skilled birth attendants. Through the Prime Minister's Programme for Family Planning and Primary Care, the government created the Lady Health Worker cadre in 1994. The aim was to provide essential primary healthcare services in the community and fulfil the unmet health needs in rural and urban slum areas.

The programme set out to select, train and deploy 100,000 female community health workers, known as 'Lady Health Workers', throughout the country by 2005. These workers, who are residents of the community in which they work, are each responsible for an average of 1,000 people.

The government spent US\$155 million during the first eight years of the programme, of which only 11% came from external donors. The initiative became part of the government's wider efforts to define and meet health workforce needs at all levels of the system, which has included an increase in the number of doctors trained.

Each Lady Health Worker is attached to a government health facility, from which she receives training, a small allowance and medical supplies. Candidates must be recommended by the community and meet a set of criteria, including having a minimum of eight years of education.

They are trained for 15 months in the prevention and treatment of common illnesses: three months in the classroom, followed by 12 months of practical on-the-job training. After training, provincial and district coordinators monitor and supervise this cadre.

An external evaluation of the programme in 2000 found that the population served by Lady Health Workers had substantially better health indicators than the control population. It was estimated that 150,000 Lady Health Workers are needed to cover the country. By the end of 2006, there were 96,000 in the system, with another 14,000 to be trained through an extension of the programme to 2008.

While numbers are growing, the coverage is imbalanced. And in some areas the entry-level qualifications are too high, resulting in few or no candidates. Adjustments to entry criteria, and careful targeting of underserved and poor areas, are being considered as the programme expands.

## **United Republic of Tanzania: Doubling the health workforce**

The United Republic of Tanzania declared its health worker shortage a crisis in 2005 after experiencing problems with financing and implementing previous human resources for health (HRH) plans. The Ministry of Health established a task force, which included representatives from government ministries and development partner agencies, to provide advice on approaches to tackling this problem. Research findings have been utilized, and a broad stakeholder consultation carried out, to inform drafting of the new HRH strategy (2007–12).

This has been designed to run simultaneously with the Primary Health Service Development Programme (2007–12) and fits into the existing Health Sector Strategic Plan (2003–08), which also focuses on developing primary healthcare. The HRH strategy has high-level political support and has been endorsed by the Minister of Health and the President.

The HRH strategy used WHO minimum standards and factored in logistical and financial constraints to arrive at country-specific targets amounting to a doubling of current health staff, broadly distributed across all cadres. Initiatives to better manage, motivate and retain existing staff are also major aspects of the programme. Public-sector salaries have been increased but are still insufficient, and an official bonding policy for new health graduates is currently under discussion. Rural–urban disparities are a recognized issue and incentive packages are being developed.

At the pre-service level, all health-worker training institutions are being encouraged to increase their intake and to use innovative measures such as distance learning and the use of adjunct faculty. All cadres are included, and the government does not want to neglect higher-level professionals at the expense of community-level workers or vice versa. Analysis has found that there are many largely untrained auxiliary workers in the workforce (e.g. maternal child health aides) and a programme has begun to upgrade their skills.

A Touch Foundation initiative to increase training capacity at Weill Bugando has expanded training capacity to approximately 700 students, who are studying medical, nursing and paramedical courses. The Touch Foundation has a Memorandum of Understanding with the government and is looking to support the government's country-wide plans to expand the health workforce. A master training plan has been developed, but is not yet costed. The Ministry of Health receives basket funding for health through its health sector-wide approach and additional funding has been mobilized from bilateral donors, the World Bank, PEPFAR and the Global Fund. However, funding gaps remain.

Plans to create integrated continuing professional development and management training programmes are outlined in the HRH strategy and are starting to be implemented with technical support from development partners. Plans to improve monitoring and evaluation, including the development of workforce observatories, are also outlined.

In the meantime, many individual organizations are carrying out independent programmes with their own monitoring and evaluation processes. Coordination of efforts remains one of the most significant challenges of the scale-up programme.

### Venezuela: Mission Barrio Adentro serves the urban poor

Public investment in health in Venezuela dropped significantly between 1970 and 1996, resulting in a rapid expansion of the private health sector and leaving an important part of the Venezuelan population without access to health services and social insurance. Ratification of the country's new constitution in 1999 sparked the collective construction of a new economic and social model, which affirmed that health is a fundamental social right. Within this context, the President set the objective of providing health services to the poor population living in the urban areas of the country, where more than 83% of Venezuelans reside.

Mission *Barrio Adentro* was launched in 2003 as a humanitarian project in one neighbourhood of the capital city of Caracas. Through the Mission, more than 50 Cuban physicians, specializing in comprehensive general medicine, were recruited to work at community clinics in poor urban areas. A year later, the Ministry of Health expanded the goal of Mission *Barrio Adentro* to provide one comprehensive community physician to every 1,250 to 2,500 inhabitants throughout the country. Led by the ministries of health and education, a long-term objective was set to produce 20,000 Venezuelan comprehensive community physicians within 10 years. In the short term, the government continued to recruit Cuban physicians and other health personnel to work in underserved areas until replaced by Venezuelan health workers. Funding for the Mission is being allocated from the national health budget, which increased from 6% of the national budget in 2000 to 26% in 2006.

With assistance from the Cuban Medical Mission, the government began to scale-up the production of Venezuelan physicians and other health workers. The scale-up focused on creating new academic programmes and on developing more teachers and more educational facilities. Newly created community health centres have been transformed into micro-schools, providing on-the-job training for five to 10 students of post-graduate comprehensive general medicine and dentistry. In this way, more than 10,000 new educational spaces have been created. The Ministry of Health invited all physicians in Venezuela to apply for the training as part of its national training plan. In addition, new undergraduate programmes in comprehensive community medicine, nursing and dentistry have been established, applying a learning model based on primary healthcare.

In 1996, the annual production of Venezuela's 10 public and private universities was 2,900 health professionals. With *Barrio Adentro*, production capacity has tripled, with no indication of migration or attrition. The Mission has ensured the retention of graduates by recruiting them from the communities to be served and offering them future employment in their own communities. By 2006, approximately 13,000 Cuban and Venezuelan physicians were working in community health centres throughout the country, covering 73% of the estimated national population. All 24 states had a ratio of one physician to fewer than 2,000 inhabitants, meeting the coverage goals set by the Ministry of Health. Over the next 10 years, graduates of the new educational programmes will be absorbed into the labour market by replacing Cuban health professionals, who will either return to Cuba or move on to provide humanitarian medical assistance in other countries.

# Acknowledgements

Many people contributed to the development of *Scaling Up, Saving Lives* and its recommendations, all of whom deserve acknowledgement and thanks.

## Global Health Workforce Alliance

The Task Force's work would not have been possible without leadership and support from the Global Health Workforce Alliance (GHWA), including the Executive Director, Dr Francis Omaswa, and his staff: Jim Campbell, Millicent Ayata, Cornely Okwo-Bele, Ben Fouquet, Fabienne Adam, Beth Magne-Watts and Eric De Roodenbeke.

Members of the GHWA Board, led by the Chair, Professor Lincoln Chen, and including in particular Dr Sigrun Møgedal, Dr Suwit Wibulpolprasert, Dr Bjarne Garden, Eric Friedman and Dr Eric Buch, provided leadership and valuable insights. The Task Force also had productive collaboration with other GHWA task forces, including the Health Worker Migration Policy Advisory Council and the Health Financing Task Force.

## Contributions to the report

The Task Force Secretariat invited several organizations and individuals to contribute to the development of the proposals and to specific chapters of the report, including: the World Bank (including Dr Joy Phumaphi, Ruth Kagia, Dr Yaw Ansu, Dr Marko Vujcic, Dr Agnes Soucat, Yohana Dukhan, Caroline Ly, Hortenzia Beciu and Peter Nicolas Materu); the World Health Organization (WHO) Department of Human Resources for Health (including Mario Dal Poz, Neeru Gupta and Jean-Marc Braichet); the Center for Global Development (Ruth Levine); and Joanne McManus (report editor).

## Technical Working Group

Members of the Technical Working Group (TWG) guided the education and training content of the report and included: Dr Peter Walker (Coordinator), Dr Raphael Aguiar (University of Minas Gerais, Brazil), Professor Ian Bates (University of London, United Kingdom), Dr Assia Brandrup-Lukanow (GTZ, Germany), Dr Manuel Dayrit (WHO), Dr Delanyo Dovlo (WHO), Professor Thembisile Khanyile (University of the Western Cape, South Africa), Dr Yunkap Kwankam (WHO), Dr Helen Lugina (East South and Central African College of Nursing, United Republic of Tanzania), Dr Moretlo Moleti (Medical Research Council, South Africa), Professor Eldryd Parry (The Tropical Health Education Trust, United Kingdom), Professor Roger Salamon (University of Bordeaux, France), Professor Nelson Sewankambo (Makerere University, Uganda), Dr Srinivas Venkatesh (National Institute of Communicable Diseases, India) and Dr Geraldine von Kasteren (University of Maastricht, Netherlands). The Technical Working Group met once in London, hosted by the School of Pharmacy, University of London.

## Meetings

In the process of developing this report the Task Force met five times and many people contributed to the thinking and organizational success of those meetings. In particular, Dr Margaret Chan, WHO Director General, launched the Task Force in March 2007 and WHO hosted the event. The British Government hosted the third meeting in London in July 2007, and the Task Force was joined by the former DFID Parliamentary Under-Secretary of State, Shriti Vadera. The Ugandan Ministry of Health, led by Minister of Health Stephen Mallinga, hosted the fourth Task Force Meeting in Kampala in October 2007. A number of people joined the Task Force for parts of these meetings and contributed to discussion and thinking, including C Kangombe, Sheila Bandazi, Edwin Wochi and Ellos Lodzeni (Ministry of Health, Malawi); Dr Kebede Kassa Tsegaye (African Union); Dr Sam Zaramba and Sam Barasa (Ministry of Health, Uganda); Dr Stewart Tyson, Ben David and Neil Squires (DFID); Dr Nick Banatvala (Department of Health, United Kingdom); and Professor Andy Haines (London School of Hygiene & Tropical Medicine).

A wider consultation meeting in Addis Ababa in November 2007 was hosted by the African Union Commission, with the notable support of Commissioner Bience Gawanas, Dr Grace Kalimugogo, Dr Thomas Bisika and Christine Mfula. Among the many participants were the Honourable Tedros Adhanom Ghebreyesus (Minister of Health, Ethiopia), the Honourable Dr Manto Tshabalala-Msimang (Minister of Health, South Africa), the Honourable Dr Brian Chituwo (Minister of Health, Zambia), the Honourable Mme Paulette Missambo (Minister of Health, Gabon) and the Honourable Satya Vayesh Faugoo (Minister for Health and Quality of Life, Mauritius). Also present were representatives of the ministries of health of Egypt and Mozambique, the African Regional Economic Communities, education institutions, development partners, UN agencies, development banks and other organizations.

Many other individuals provided invaluable insights in the process of developing the report: the Honourable Dr Rose Gahiru (Minister of Health, Burundi); the Honourable Geraldine Bitamazire (Minister of Education and Sport, Uganda); the former and current Secretaries of State for Development Hilary Benn and Douglas Alexander and the former Parliamentary Under-Secretary of State Shriti Vadera (United Kingdom); Professor Don Berwick (Institute for Healthcare Improvement); Dr Margaret Chan, Dr Carissa Etienne and Dr Badara Samb (WHO); Ambassador Mark Dybul (PEPFAR); Professor Michel Kazatchkine (the Global Fund to Fight AIDS, Tuberculosis and Malaria); Dr Julian Lob Levyt (GAVI Alliance); Bernard Petit, Philip Brunet and colleagues (European Commission); Dr Joy Phumaphi (World Bank); Dr Andrew Rogerson, Dr Stewart Tyson and Ben David (DFID); Professor Jeffrey Sachs and Dr Joanna Rubinstein (Earth Institute, Columbia University); Professor Klaus Schwab (World Economic Forum); Caroline Sergeant (United Kingdom delegate World Bank/IMF); Anne Sliney (Clinton Global Initiative); Dr Michael Smalley (AMREF); Estelle Quain and James Heiby (USAID); and Dr Tadataka Yamada (Bill & Melinda Gates Foundation).

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Many other people briefed and advised the Task Force and Secretariat members as *Scaling Up, Saving Lives* was developed, including participants in the education and training sessions at the GHWA Forum in Kampala, Uganda in March 2008, and we are grateful to them all.

# Terms of reference for the Task Force

The Task Force for Scaling Up Education and Training for Health Workers will develop practical proposals for action to massively increase the production of health workers, with special attention to developing countries, and will champion the issues to help secure new and significant investment from governments and donors.

It will:

- learn from current and past experience, determine how to replicate successes and estimate the resources needed to do so
- design a road map to assist countries in the expansion of health-worker education and training as part of wider health-sector plans and labour-market strategies
- create a set of guiding principles and strategies for education and training bodies to use in their plans to increase the production of health workers
- secure international commitment to practical solutions by engaging donors and fostering partnerships between developing and developed countries.

Many countries, developing and developed, are already looking at ways to increase the production of health workers. The Task Force will build on this.

## Photo credits

Page 5: Dilip Lokre, 2007. A nongovernmental organization health worker weighing an infant.

Page 13: Arie Basuki, 2005. Polio vaccination week at Muara Angke, Jakarta, Indonesia: district government staff from Pluit administering a polio vaccination.

Page 19: Jenny Elizabeth Zablah Alabi, 2003. Primary care in a rural community in El Salvador; sharing laughs with children.

Page 37: McLloyd Jumpay, 2002. Nurse examining a sick patient in Ifugao, Philippines.

Page 45: Alyssa Banta, 2007. Measuring the circumference of a boy's arm using a specially gauged tape.

Page 65: Budi Yanto, 2006. A bird flu patient under observation in the Hasan Sadikin Hospital, Bandung, West Java, Indonesia.

Page 73: Vanessa Vick, 2007. A baby being weighed on a tree outside Mpummedde Health Center III, Uganda.

Page 83: Vanessa Vick, 2006. Caring for a child at the Mulago Hospital, Kampala, Uganda.



