Scaling up in international health: what are the key issues?

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The term ‘scaling up’ is widely used in the international health literature, though it lacks an agreed definition. We review what is meant by scaling up in the context of changes in international health and development over the last decade. We argue that the notion of scaling up is primarily used to describe the ambition or process of expanding the coverage of health interventions, though the term has also referred to increasing the financial, human and capital resources required to expand coverage.

We discuss four pertinent issues in scaling up the coverage of health interventions: the costs of scaling up coverage; constraints to scaling up; equity and quality concerns; and key service delivery issues when scaling up.

We then review recent progress in scaling up the coverage of health interventions. This includes a considerable increase in the volume of aid, accompanied by numerous new health initiatives and financing mechanisms. There have also been improvements in health outcomes and some examples of successful large-scale programmes. Finally, we reflect on the importance of obtaining a better understanding of how to deliver priority health interventions at scale, the current emphasis on health system strengthening and the challenges of sustaining scaling up in the prevailing global economic environment.

Keywords Health planning, health policy, health systems

KEY MESSAGES

- ‘Scaling up’ is used primarily to describe the ambition or process of expanding the coverage of health interventions, but can also refer to increasing the financial, human and capital resources required to expand coverage.
- Four major issues in scaling up the coverage of health interventions are: the costs of scaling up coverage; constraints to scaling up; equity and quality concerns; and key service delivery issues when scaling up.
- If the impressive health improvements that have been achieved over the last decade are to be sustained, it is essential that efforts to increase coverage of health interventions continue, despite the prevailing global economic climate.

Introduction

Although the term ‘scaling up’ is now frequently used in the international health literature, it lacks formal definition and there is, as yet, no consensus on terminology or frameworks for studying scaling up in the context of international health (Simmons et al. 2007). Much of the interest in ‘scaling up’ has emerged over the last decade, though the notion of scaling up in health is not in itself new, and its origins can be traced back further.
It is in the last decade, however, that the notion of scaling up has become so widely used (Chisholm et al. 2007; Kurowski et al. 2007; Lane and Glassman 2007; Teklehaimanot et al. 2007; Ahmadzai et al. 2008; Boulle and Ford 2008; Crisp et al. 2008; Desmond et al. 2008; Hanson et al. 2008; Ojikutu et al. 2008; Toure et al. 2008; Van Damme et al. 2008). A literature search for the use of the term ‘scaling up’ (and ‘scaling-up’) in the title of journal articles was undertaken at the end of June 2008 using the PubMed database. The search identified two articles that related to international health concerns before January 2001 and 89 thereafter. Since 2001 the number of papers on scaling up has increased exponentially, with two-thirds occurring since 2006. The vast majority of papers relate to HIV/AIDS prevention and care activities (Binswanger 2000; Fitzgerald et al. 2005; Glick 2005, Manzi et al. 2005; Scott et al. 2005; Asante 2007; Bolu et al. 2007; Maher et al. 2007; Chopra and Rollins 2008; Tkitchenko-Schmidt et al. 2008), primarily the roll-out of anti-retroviral therapy (Koenig et al. 2004; Bautista-Arrredondo et al. 2006; Echevarria et al. 2006; Ferradini et al. 2006; Harries et al. 2006; Raynes and Maibani 2006; Sebastian et al. 2006; Boulle and Ford 2007; Ojikutu et al. 2008; Toure et al. 2008). However, the papers cover a wide range of topics, including issues relating to the expansion of malaria (Curtis et al. 2003; Lines et al. 2003; Teklehaimanot et al. 2007; Hanson et al. 2008), tuberculosis (Nsubebu et al. 2001; Chimizzi et al. 2005; Libamba et al. 2005; Ahmadzai et al. 2008; Ramon-Pardo et al. 2008), maternal (Rasch et al. 2005; Kestler et al. 2006; Billings et al. 2007; Gloyd et al. 2007; Muffler et al. 2007), newborn (Knippenberg et al. 2005; Shantharam Baliga et al. 2007) and child (Larson 2004; Huicho et al. 2005; Chanteau et al. 2006) health activities; international aid (Lane and Glassman 2007); the cost of scaling up health interventions (Johns and Baltussen 2004; Chisholm et al. 2007; Gazzano et al. 2007; Stenberg et al. 2007; Teklehaimanot et al. 2007); and human resources for health (Van Damme et al. 2006; Kurowski et al. 2007; Hanvoravongchai 2007; Sundaram et al. 2007; Crisp et al. 2008; Sim and Mackie 2008; Van Damme et al. 2008). While many of the papers reported on the strategies for, or challenges to, scaling up, relatively few report on the results of an intervention successfully delivered on a large scale (Stringer et al. 2003; Koenig et al. 2004; Chimizzi et al. 2005; Huicho et al. 2005; Gloyd et al. 2007; Ahmadzai et al. 2008).

The current interest in scaling up can be understood in the context of changes in the international development arena that have occurred over the last decade. In the late 1990s the HIV/AIDS pandemic in the developing world received considerable attention following evidence that antiretroviral treatment could dramatically reduce the spread of the virus within an infected individual. Since then, there has been a considerable focus on providing universal access to antiretroviral therapy for HIV-positive individuals, and the calls to scale up activities for HIV prevention, testing, treatment and care reflect a sense of urgency to tackle the challenges associated with the HIV/AIDS crisis.

The adoption of the Millennium Development Goals (MDGs) by the UN General Assembly in September 2000 focused attention on the need to intensify international development efforts and set targets to reduce poverty and improve health by 2015. Three of the goals directly relate to health: MDG4 on reducing child mortality, MDG5 on improving maternal health and MDG6 on combating HIV/AIDS, malaria and other diseases. Since this time, other influential initiatives have also called for improved health outcomes, including the Roll Back Malaria Partnership, the GAVI Alliance, Stop TB Partnership, the 3 by 5 Initiative and the Commission for Macroeconomics and Health (CMH). Alongside these initiatives there has been a substantial increase in aid volumes channelled through various financing mechanisms, including the Global Fund to fight AIDS, Tuberculosis and Malaria (GFATM). In parallel to these international efforts, individual countries have set out ambitious plans for an expansion of health interventions financed using domestic resources freed up by debt relief as well as external donor support.

In preparing this article we reviewed published and grey literature. This included searches in PubMed, Embase and Global Health, and internet searches for non-peer-reviewed publications of selected international organizations. We obtained additional reports by searching the reference lists of identified publications. The article does not represent a systematic review of the evidence on scaling up, but rather it is intended to reflect on what is meant by scaling up, to map out the scope of key debates and issues, and to stimulate further reflection on the impact of the substantial efforts to scale up coverage of health interventions.

The article begins by asking what is meant by the term ‘scaling up’ in the context of international health. We focus on four key issues in scaling up: the cost of scaling up, constraints to expanding coverage, equity and quality concerns, and service delivery issues. In the next section, we review progress in scaling up health interventions and outline the increases in international development assistance, new health initiatives and financing mechanisms. We also consider the extent to which efforts to scale up have achieved the desired impact on health outcomes and provide selected examples of successful large-scale programmes. Finally, we reflect on the current emphasis on health system strengthening to sustain delivery of priority health interventions.

**What is meant by ‘scaling up’?**

Although ‘scaling up’ is now frequently used in the international health literature, there have been few attempts to define what is meant by the term (De Jong 2002; Simmons et al. 2007). ‘Scaling up’ has been used to describe an increase in the coverage of health interventions that have been tested in pilot and experimental projects in order to benefit more people and support policy and programme development at a large or national scale (Simmons et al. 2007). However, the term tends to be used with less precision, and often as short hand to describe the objective or process of either increasing the coverage of health interventions (WHO Commission on Macroeconomics and Health 2001; Victora et al. 2004; Simmons et al. 2007) or increasing the financial, human or capital resources that are required to expand coverage (WHO Commission on Macroeconomics and Health 2001; Marchal et al. 2004; Hanvoravongchai 2007; Stenberg et al. 2007; Teklehaimanot et al. 2007).

Increased coverage typically refers to extending the geographical reach of an intervention such that it benefits a greater
number of people. This is consistent with its early use by UNICEF in the 1980s, which sought to take child health interventions such as growth monitoring, oral rehydration therapy, breastfeeding and immunization (GOBI), which had been shown to have a large health impact when delivered on a small scale, to a national scale (Black 1986; Black 1996). The term can also denote increasing the coverage of an intervention beyond the initial population group. Although scaling up usually means reaching more people, it is plausible for scaling up to have a functional dimension in which the term describes an increase in the scale, scope or range of activities (Uvin 1995).

It is widely recognized that there is a need to scale up inputs to the health sector to increase coverage of health interventions and improve health outcomes. Early use of the term ‘scaling up’ focused on the need for additional financial resources. Moreover, multiple constraints to scaling up coverage have been identified (Hanson et al. 2003). In particular, it was widely recognized that an expansion of service delivery would not be possible without scaling up human resources to address the critical shortages of health workers (Hanvoravongchai 2007; Killick and Foster 2007; Kurowski et al. 2007; Lane and Glassman 2007). Similarly, scaling up the provision of antiretroviral therapy and new antimalarial drugs emphasized the need to improve access to essential medicines.

Scaling up has been used to describe both the objective and process of expansion, and has often been used alongside the terms ‘going to scale’ and ‘at scale’. In some applications, scaling up simply depicts an increase in scale, while in others it describes an expansion that ultimately results in the universal coverage of health interventions (Victora et al. 2004). It has been used in the latter sense in the report ‘Towards universal access: scaling up priority HIV/AIDS interventions in the health sector’, which describes progress against the commitment to ensure universal access to comprehensive prevention programmes, treatment, care and support by 2010 (World Health Organization et al. 2007). Moreover, thinking about scaling up as a process highlights the need for a strategy and implementation plan that considers the policy context, delivery mechanism and resource requirements, as well as the pace of change, sequencing of activities, areas for prioritization, and monitoring and evaluation (Gericke et al. 2005; Simmons et al. 2007).

Key issues in scaling up coverage of health interventions
This section concentrates on four pertinent issues in scaling up health interventions. It discusses in turn the costs, constraints, equity and quality concerns, and service delivery issues.

1. What is the cost of scaling up coverage of health interventions?
Following the adoption of the MDGs and the widespread commitment to achieve substantial health improvements by 2015, considerable attention was devoted to estimating what it would cost to halve world poverty and attain the health goals. Determining the level of resources required involves modelling the potential impact and cost of a range of interventions in a variety of settings. For example, costs are expected to vary according to the size of the population at risk, type of illness, demographic and socio-economic factors, geography and infrastructure, availability of health workers, and other characteristics of the health system in each country (Johns and Tan Torres 2005). The costing emphasizes the importance of determining the existing availability and utilization of resources as well as the marginal cost of additional infrastructure, equipment and human resources required (World Bank 2004; Johns and Tan Torres 2005). Other principles in generating cost estimates are: to identify economies and diseconomies of scale; to separate the fixed and variable cost components; and to include transitional or administrative costs, as they can constitute a significant proportion of costs in the short run (Johns and Tan Torres 2005).

Despite the technical challenges, there have been several attempts to estimate the cost of scaling up the coverage of health interventions. The most recent is published in the report of the High Level Taskforce on International Innovative Financing for Health Systems, which estimates that strengthening the governance, financing and delivery of health systems to ensure rapid progress toward the health MDGs would cost an additional US$36 billion to US$45 billion per annum by 2015 (High Level Taskforce on International Innovative Financing for Health Systems 2009).

Other studies have focused on the cost of scaling up a subset of health interventions. For example, the WHO estimated that on average an additional US$5.2 billion was required annually between 2006 and 2015 to scale up child health interventions, including those that address malnutrition, pneumonia, diarrhoea and malaria (Stenberg et al. 2007). Similarly, the additional annual global resources required to attain universal coverage of maternal and newborn health services was estimated to be US$3.9 billion, with the amount increasing to US$5.6 billion when more rapid rates of scale-up were assumed (Johns et al. 2007). The annual resources required to provide comprehensive malaria prevention and treatment were recently estimated to be between US$5.1 billion and US$6.2 billion (Roll Back Malaria 2008).

A key challenge in interpreting, as well as producing, cost estimates is that health outcomes can have multiple determinants that cut across many sectors, and there is often little known about the relative contribution of each factor or about the magnitude of potential interaction effects (World Bank 2004). For example, reductions in child mortality relate in part to the effectiveness of vaccines, but also to many other interventions. Similarly interventions can impact on several aspects of health and there is a risk of double-counting the costs (World Bank 2004). For example, interventions to prevent malaria in pregnancy impact on maternal and newborn health as well as malaria-specific outcomes. This means that a degree of caution must be exercised in applying cost estimates to resource mobilization.

2. What are the constraints to scaling up coverage of health interventions?
Absorptive capacity, macroeconomic impact of aid and the need for health system strengthening
Despite widespread consensus on the need for increased aid, concerns have been expressed about the capacity of countries to
absorb additional aid volumes (Department for International Development 2002; De Renzio 2005; De Renzio 2007; International Monetary Fund 2007). Absorptive capacity relates to macro and micro constraints that recipient countries face in using aid resources effectively. Substantial inflows of external resources can adversely impact on government capacity for macroeconomic management, planning, budgeting and service delivery. Increasing levels of aid dependence may also undermine commitment to necessary reforms and local accountability mechanisms.

The macroeconomic impact of aid relates to three specific concerns (Department for International Development 2002). First, increased aid inflows may cause an appreciation in the real exchange rate and undercut the competitiveness of the export sector. Second, high and volatile aid flows can compromise effective monetary and exchange rate management, since the additional financial resources create additional demand and pressures on inflation as well as on the exchange rate. Third, aid flows can put excessive pressure on the capacity of recipient country governments to deliver public expenditure programmes. The ability of a recipient country to absorb substantial external resources is determined by its macroeconomic condition, with countries that have reached a mature stage of macroeconomic stabilization better positioned to effectively use scaled-up aid inflows (International Monetary Fund 2007).

Scaling up the coverage of priority health interventions not only requires additional financial resources but a health system capable of delivering the interventions on a large scale (World Health Organization 2007). The ability of a recipient country to effectively utilize additional aid may be constrained in the short term by the capacity of health workers, the policy and institutional framework, or by factors that dissuade or prevent people from accessing health services (Lu et al. 2006). Capacity constraints can occur at national or local level, with experience from the Tanzania Essential Health Interventions Project demonstrating the difficulties for a district health management team to spend effectively an additional US$1 per person per year (Tanzania Ministry of Health and International Development Research Centre 2003). Moreover, the World Bank estimated that about half of the funds disbursed for health efforts in sub-Saharan Africa never reach clinics and hospitals because of problems in the health delivery system, including payments to ghost employees, padded prices for transport and warehousing, the siphoning off of drugs to the black market, and the sale of counterfeit medicines (Garrett 2007). Thus, as argued in the CHM report, to scale up access of the world’s poor to essential health services requires both a ‘commitment of massive financial resources for health’ and ‘a bold process of health system strengthening’ (WHO Commission on Macroeconomics and Health 2001).

**Categorization of constraints to scaling up**

Conceptual work on the constraints to expanding coverage of health interventions categorizes five levels at which barriers may occur: (1) community and household; (2) health services delivery; (3) health sector policy and strategic management; (4) public policies cutting across sectors; and (5) environmental and contextual characteristics (Hanson et al. 2003). Much of the work on addressing the constraints to effective health service delivery has focused on strengthening what has been termed the ‘close-to-client’ health system and addressing barriers at the first three levels (Oliveira-Cruz et al. 2003a).

At the community and household level, constraints to scaling up relate to either lack of demand for a health intervention or physical, financial or social barriers that limit its utilization (Hanson et al. 2003). Evidence in the literature reports on efforts to encourage demand using health education and social marketing, to overcome some of the access barriers by engaging community health workers and employing outreach strategies, and to promote community participation in health planning and implementation (Oliveira-Cruz et al. 2003a).

The ability to scale up health service delivery can be affected by multiple constraints, including a lack of infrastructure and equipment; inadequate drugs and medical supplies; shortage and distribution of qualified staff; weak management, technical knowledge and inadequate supervision (Hanson et al. 2003). In the context of scaling up, the supply of human resources has been highlighted as a major impediment since many health interventions are labour intensive and there are severe shortages of qualified health personnel in many countries (Chen et al. 2004; Hongoro and McPake 2004; Joint Learning Initiative 2004; Marchal et al. 2004; Van Damme et al. 2006; World Health Organization 2006c; Hanvoravongchai 2007; Kurowski et al. 2007; Sundararaman 2007; Crisp et al. 2008; Sim and Mackie 2008; Van Damme et al. 2008). Some constraints can be eased with additional funds, though it can be more difficult to overcome systemic issues. For example, with financial resources the infrastructure, equipment and medical supplies can be made available and additional health workers trained and recruited. However, it may be more difficult to reform systems for managing resources or change behaviour to improve provider practice. Similarly, while an insufficient number of health workers lies at the heart of the human resources crisis, there are also problems with their distribution, range of skills, motivation and individual performance which relate to the weak capacity for planning and managing human resources in the health sector.

Policies and management at the health sector level can also act as constraints to scaling up health interventions. Examples cited include: weak and overly centralized systems for planning and management; weak incentive structures to use inputs efficiently and respond to user needs; weak policies and systems for drug supply; inadequate regulation of pharmaceuticals and private sector providers; lack of coordination across sectors; limited engagement with civil society; and reliance on donor funding that reduces flexibility and ownership (Hanson et al. 2003). These barriers to expanding access to health interventions are much less amenable to buy-out through the provision of additional funds (Hanson et al. 2003) and there is relatively little evidence on how to address them (Oliveira-Cruz et al. 2003a).

Success in achieving improvements in health outcomes will also depend on efforts undertaken in other sectors. For example, ministries of economic planning and finance have a role in ensuring health is well reflected in poverty reduction strategies and medium-term expenditure frameworks. Ministries of labour, education and the civil service can
influence the pay and conditions, training and retention of health workers, while ministries of trade and industry may affect access to drugs and other supplies. Finally, contextual factors, including the overall levels of education, housing, transport, water and sanitation, can impact on health needs, health-seeking behaviour and ultimately health outcomes (World Health Organization 2007). As this last point emphasizes, priorities for scaling up and health system strengthening need to be tailored to the country-specific context.

3. Equity and quality issues in scaling up health interventions

Ensuring equitable access to quality services over a sustained period of time poses some of the main challenges in scaling up health interventions. In terms of equity, a key issue is the extent to which resources should be used to maximize coverage across all population groups, or directed to target poor and vulnerable groups, which tend to be the hardest to reach (Victoria et al. 2003; Bennett 2008; Mulholland et al. 2008). This issue has been described as a trade-off between the objectives of efficiency and equity: while it may be efficient to achieve higher levels of coverage by expanding access to those ‘easy to reach’ groups (which are typically in the middle to upper socio-economic groups and in urban areas), the poorest and vulnerable populations are unlikely to benefit without additional measures to target those most in need. Thus, the concern is that without measures specifically directed at the poor and vulnerable populations, scaling up may result in widening inequalities in health outcomes.

The findings from a pilot of the Affordable Medicines Facility – malaria (AMFm) in Tanzania illustrate this concern (Government of Tanzania and Clinton Foundation 2008). The study has shown that introducing subsidized artemisinin-based combination therapy in public and private sector health providers has increased access to effective malaria treatment, though the benefits tend not to reach the poorest two quintiles (who may not be reached by any formal sector provider). The authors argue that additional interventions would be needed to improve equity in the roll-out of a large-scale subsidy. Similarly, while the evaluation of the 3 by 5 Initiative reported that the number of people on antiretroviral therapy had doubled in 2005 alone, it also reported inequities when coverage was disaggregated by gender, age and geographical area (Battistella Nemes et al. 2006). The evaluation emphasizes the importance of striking a balance between the size of the population covered and equity concerns.

Ensuring the quality and consistency of health interventions when delivered on a large scale can be challenging and is particularly important in the care of chronic conditions. In the context of resource constraints, there is often a trade-off between extending coverage and maintaining the quality of the intervention. Fortunately, the desire to scale up has been accompanied by increases in the financial resources, which have supported, among other things, improvements in the infrastructure of health facilities and the availability of antiretroviral treatment. For example, in several countries Global Fund resources have been used for construction and renovation of health facilities as well as to train health personnel (Yu et al. 2008). These resources have also been used to improve the availability of selected medicines, and in 2005 the WHO estimated that up to 300 000 lives had been saved in 2 years as a result of improved access to HIV and AIDS treatment programmes (Schwartlander et al. 2006).

There is, however, a concern that efforts to scale up HIV/AIDS activities have diverted resources and had a detrimental impact on the provision of other health services. For example, there is some evidence that the availability of maternal health and family planning services has decreased due to shortages of health personnel and donor funding (Yu et al. 2008). Similarly, the establishment of parallel systems in relation to major diseases, such as for the procurement of antiretrovirals, may have diverted attention from the quality of existing government systems (Yu et al. 2008).

4. Service delivery issues in scaling up health interventions

Alternative approaches to health service delivery

Early discussions on how to deliver health interventions at scale reinvigorated debate on vertical and integrated approaches to delivering health services. The appropriate delivery mechanism depends on the nature of the health intervention and contextual factors such as the capacity of the prevailing health system. For instance, where there are capacity constraints in existing services, an expansion of access to priority interventions that can be delivered independently of the health service infrastructure may initially need to rely on vertical programmes (Oliveira-Cruz et al. 2003b; Ranson et al. 2003). Many early attempts to scale up HIV prevention and care have taken this approach and used non-governmental organizations to deliver programme activities. At least initially, the emergence of several large disease-focused initiatives, such as the US President’s Emergency Plan for AIDS Relief (PEPFAR), discouraged an integrated approach to scaling up health service delivery. More recent thinking emphasizes the potential gains from using the resources and direction provided by disease-specific programmes to drive the required improvements in the health system, addressing the generic problems of human resource development, financing, planning, drug supply and use, and quality assurance (World Health Organization Maximizing Positive Synergies Collaborative Group 2009), sometimes called a ‘diagonal’ approach (Ooms et al. 2008).

Understanding intervention complexity

In thinking about how to approach moving from a pilot programme to implementation on a large scale, the work on complex interventions is insightful (Gericke et al. 2005; Medlin et al. 2006). Gericke et al. define intervention complexity as the quality and quantity of non-financial resources required to implement and sustain an intervention. They also propose a conceptual framework for analyzing technical complexity, which can be used to identify the local and intervention-specific constraints to scaling up a health intervention. Four dimensions are considered: the intervention itself; delivery characteristics; requirements in terms of government capacity; and usage characteristics (Gericke et al. 2005). For example, analyzing the extent to which the intervention represents a stable, standardized product that can be easily stored and transported highlights the relative complexity of vaccines.
compared with condoms. In terms of delivery, interventions differ in their requirements regarding facilities, human resources, transport and communication, and therefore may be more or less suited to alternative delivery mechanisms such as outreach schemes or private sector health providers. Similarly, demands on the government vary, with some interventions requiring more extensive public sector engagement in policy, service delivery or regulation than others. Finally, the usage characteristics capture factors that relate to the existing demand and the ease of use, with some interventions requiring more consumer information or training to apply the intervention effectively.

Understanding intervention complexity can help in identifying strategies to overcome resource constraints. It also highlights the importance of tailoring the approach to the specific intervention and country context, to think more innovatively about how to address the implementation constraints and try new ways of working. We reflect here on two areas that have received considerable attention.

**Strategies to overcome human resource constraints**

Alongside efforts to address the shortage of health workers, strategies that have been successfully deployed include the standardization and simplification of procedures and the training of low-skilled staff to undertake tasks that would normally be performed by more qualified personnel. For instance, there is evidence that trachoma surgery, which is traditionally performed by ophthalmologists, can be effectively and safely carried out by integrated eye-care workers after a few weeks of training (Alemayehu et al. 2004).

There is also a renewed interest in the role of community health workers, who can be trained in basic skills in a relatively short period (Nsutebu et al. 2001; Huicho et al. 2005; Nyonator et al. 2005; Sundararaman 2007; Ahmadzai et al. 2008). The increased utilization of community health workers is often accompanied by some upgrading of responsibilities, such that health care activities are undertaken at the lowest possible level of health worker. For example, the WHO proposed the training of community health workers and ‘task-shifting’ as core ideas in its ‘Treat, Train, Retain: the AIDS and health workforce plan’ (World Health Organization 2006a). Another advantage of using community health workers is their proximity and familiarity to patients, which helps to overcome geographical, social and cultural barriers to accessing health services. For example, the introduction of home management of malaria was fuelled by a desire to ensure that antimalarials were available as close to the home as possible in order to encourage prompt treatment (World Health Organization 2002).

**Scaling up using non-state health care providers**

Alongside work to strengthen the capacity of the public sector to deliver health interventions at scale, there is also recognition that increased coverage cannot be achieved by replicating existing models for service delivery or focusing only on the public sector (Homisy et al. 2004; World Health Organization 2007). This has led to an increased interest in engaging with non-state health care providers, which encompass a range of actors supplying services in low- and middle-income countries, including non-governmental organizations, private-for-profit, informal and traditional providers (Palmer et al. 2003; World Health Organization 2006b). They are a diverse group with differing goals, incentives, levels of presence, political and economic leverage, and sometimes different target groups. The size of their operations also varies from large mission or private hospitals through to small pharmacies and individual drug sellers. Non-state actors also have a particularly important role in fragile states, where the capacity of the public health services is often severely constrained.

Moreover, it may not be possible to achieve large-scale or universal coverage without engaging the non-state sector. For instance, the poor frequently use non-state providers, with a third of people in each of the three lowest income quintiles seeking care from the private sector in South Africa (Patouillard et al. 2007). Similarly, any efforts to scale up access to effective malaria treatment restricted to the public sector would have had a limited impact since 60–80% of patients obtain drugs from private sector providers (Goodman et al. 2007).

Much of the work with non-state providers has sought to demonstrate that it is possible to overcome public sector constraints by working with non-state providers through mechanisms such as contracting, franchising or social marketing. There is, however, some evidence of non-state providers working at scale, such as in the social marketing of condoms and the distribution of malaria bed nets using a scheme which links the public distribution of vouchers with private provision of nets (Gercke et al. 2005; Mulligan et al. 2008).

**What has been achieved from scaling up?**

Over the last decade the context for international health and development has changed considerably and there is now widespread agreement on the need to scale up the coverage of health interventions. The HIV/AIDS pandemic and the MDGs were both instrumental in aligning efforts to alleviate poverty, and improve health and other outcomes. They also provided the impetus for substantial increases in international development assistance.

**Scaling up of international development assistance**

The scaling up of aid volumes for health began in the late 1990s in response to the HIV/AIDS pandemic, and in particular to calls for additional resources to make antiretroviral therapy widely available (Garrett 2007; Ravishankar et al. 2009). The adoption of the MDGs in 2000 and debt relief initiatives also helped to generate increased financial resources. The emphasis was on the need for international aid, though developing countries were also encouraged to prioritize poverty-related expenditure using resources available from debt relief, as part of the Highly Indebted Poor Countries (HIPC) initiative (International Monetary Fund 2008), and to increase domestic commitments to health. The Monterrey Consensus of the UN International Conference on Financing for Development in 2002 committed rich countries to increase development assistance towards the goal of 0.7% of national income.

The scaling up of aid volumes for health has been remarkable: development assistance for health grew from $5.6 billion...
in 1990 to $21.8 billion in 2007 (Ravishankar et al. 2009). A recent review of official development assistance for maternal, newborn and child health reported a 64% increase between 2003 and 2006 (from US$2119 million to US$3482 million) (Greco et al. 2008). Over the 3-year period, donors increased their bilateral contributions by 45%, multilateral spend (EU, WB, UNICEF) by 68% and global health initiatives (GAVI and GFATM) by almost 200% (Greco et al. 2008). Despite the increases in aid volumes for health, it has been argued that they fell short of estimated needs. For example, the recent Taskforce on Innovative Financing for Health Systems argues that global health priorities need at least an additional US$36 billion per year by 2015 (High Level Taskforce on International Innovative Financing for Health Systems 2009).

The scaling up of aid volumes has been accompanied by increased attention to the quality of international development assistance. Commitments to harmonize and align aid delivery were made at the 2003 OECD High-Level Forum of the Development Assistance Committee (DAC) in Rome. The 2005 Paris Declaration on Aid Effectiveness reaffirmed donor commitment to strengthen partner countries’ national development strategies and operational frameworks, and among other things to align aid with partner countries’ priorities, eliminate duplication of effort and rationalize donor activities, simplify donor policies and procedures, and enhance accountability by defining measures and performance standards. Some progress has been made, though efforts to improve aid effectiveness continue and were discussed again at the 2008 Third High-Level Forum meeting in Ghana.

As part of the scaling up of international development assistance numerous health initiatives have been established. These initiatives focus on global partnerships, and are typically programmes targeted at specific diseases. Recent global health initiatives include the Roll Back Malaria Partnership launched in 1998; the GAVI Alliance in support of childhood vaccination and the Stop TB Partnership, both launched in 2000; the 3 by 5 Initiative launched in 2003, which sought to deliver anti-retroviral treatment to 3 million people worldwide by the end of 2005; and the Partnership for Maternal, Newborn and Child Health, which was created in 2005.

Several new financing mechanisms have also been launched in recent years. Most notably the GFATM was established in 2002 with the intention of attracting, managing and disbursing resources rather than implementing programmes directly. It is now a substantial source of international development assistance for health and provides 20% of all global support for HIV/AIDS programmes (World Health Organization et al. 2007) and 66% of funding for efforts to combat TB and malaria (Garrett 2007). The International Financing Facility for Immunization (IFFIm) was launched in 2005 and uses long-term legally binding donor commitments to leverage additional money from international capital markets for immediate use as grants to developing countries to support immunization programmes. Moreover, to improve procurement of medicines UNITAID was established in 2006 as an international drug purchase facility.

Other notable developments in international health include the launch of the Bill and Melinda Gates Foundation in 2000, PEPFAR created in 2003, the President’s Malaria Initiative launched in 2005, and the Clinton Foundation, which was also established in 2005. More recently, the International Health Partnership (IHP) was established in 2007 and involved developing countries, donors and international agencies signing global and country-level compacts that set out a process of mutual responsibility and accountability for the development and implementation of national health plans.

**Scaling up human resources for health**

In addition to the expansion of financial resources, over the past few years many countries have introduced programmes to scale up human resources (Palmer 2006; Kurowski et al. 2007). The programmes often include increasing pre-service training capacity, monetary incentives designed to improve motivation and retention, and increased utilization of community health workers combined with task-shifting to train mid-level and low-skilled workers to provide services that would normally be considered beyond their capabilities.

For example, the Malawi government launched a human resources programme that increased salaries for 11 professional cadres, extended the capacity of the training institutions and increased the recruitment of volunteer doctors and nurse tutors (Palmer 2006). Other examples include: international donors financing the salaries of 2000 additional health workers in Kenya and the introduction of a range of financial, housing, education and other incentives to encourage the deployment of Zambian health workers to rural and remote areas (Yu et al. 2008; World Health Organization Maximizing Positive Synergies Collaborative Group 2009). Pre-service training for high-level cadres has also been expanded in Ethiopia, Zambia, Mozambique and Uganda, and many countries, including Kenya, Uganda and Haiti have scaled up cadres of community health workers (World Health Organization Maximizing Positive Synergies Collaborative Group 2009). Another, largely unintended, consequence of scaling up health interventions has been the movement of health workers from the government to the non-state sector, which tends to offer higher salaries (World Health Organization Maximizing Positive Synergies Collaborative Group 2009).

As yet there is relatively limited evaluation of the impact of these human resource initiatives on motivation and retention, and some investments, such as pre-service training, entail an inevitable time lag before generating results. For instance, a comprehensive evaluation of the Malawi programme is just beginning and early evidence from Zambia shows that much of the health worker increase has benefitted urban areas (World Health Organization Maximizing Positive Synergies Collaborative Group 2009). While there is still much to learn about how best to scale up health workers, there is widespread appreciation that programmes to address the human resource crisis are essential and complement efforts to expand health service delivery.

**Impact of scaling up on health outcomes**

The substantial increases in development assistance have been accompanied by some progress against the health MDGs. While the overall trends show improvements in outcomes, attribution to specific programmes can be difficult and comparatively little
is known about the merits of alternative approaches to scaling up and their impact on morbidity and mortality.

Infant and child mortality rates have declined over the past two decades, with the under-five mortality rate in developing regions falling from 103 deaths per 1000 in 1990 to 74 in 2007 (United Nations 2009). The pace of progress is uneven across regions and countries, with modest progress in sub-Saharan Africa where, due to the high fertility rate, there are more under-five deaths now, in absolute numbers, than in 1990: 4.2 million in 1990 compared with 4.6 million in 2007 (United Nations 2009). Attribution of improved health outcomes can be problematic though it is claimed that routine immunization campaigns combined with concentrated efforts in countries with hard-to-reach areas has achieved substantial reductions in measles-related deaths: from 750,000 worldwide in 2000 to 197,000 in 2007 (United Nations 2009).

Remarkable progress has been made in expanding coverage for antiretroviral therapy for HIV/AIDS. By 2007, 3 million people were receiving treatment. This progress needs to be expanded and sustained, however, since it is estimated that there are 33 million people currently living with HIV/AIDS, and only about a third of those needing treatment are estimated to have access to drugs. The 2009 MDG report also claims that scaling up malaria interventions has begun to yield results, with data on the dramatic increases in the use of bed nets and increases in the procurement of artemisinin-based combination therapies (ACTs) (United Nations 2009). Nonetheless, slow progress in improving the actual use of ACTs in children has been documented in a recent review of Global Fund programmes (Macro International Inc. et al. 2009).

There is a particular concern about slow progress towards MDG-5. Maternal mortality levels remain unacceptably high across the developing world, and over half a million women die each year from treatable and preventable complications of pregnancy and childbirth. The proportion of births attended by skilled health workers has increased from 53% in 1990 to 61% in 2007, though more than half of all births in Southern Asia and sub-Saharan Africa take place without the assistance of trained personnel (United Nations 2009). The maternal mortality rate is particularly severe in sub-Saharan Africa where a woman’s risk of dying is 900 in 100,000 live births compared with 9 in 100,000 live births in the developed world (United Nations 2009).

Evidence is also available about improvements in health outcomes at the country level, drawing on, for example, multiple rounds of the Demographic and Health Surveys (DHS), which can track changes over time and demonstrate improvements relating to the roll-out of national or large-scale health interventions. A recent study reported on the reductions in child mortality in Tanzania since the nationwide scale-up of insecticide-treated nets in 1999 and the integrated management of childhood illnesses (IMCI) in 2000 (Masanja et al. 2008).

Evidence of successful large-scale programmes

Although there has been some attribution of improved health outcomes to the efforts to scale up coverage of health interventions, there are relatively few studies that examine how to scale up delivery of priority health interventions or that begin to unpack the components of successful large-scale programmes.

Work by the Centre for Global Development (CGD) on Millions Saved: Proven Successes in Global Health sought to identify large-scale health programmes that have had a substantial impact on mortality and morbidity (Levine et al. 2004). They describe 17 case studies that satisfy their criteria of cost-effective interventions that addressed a problem of public health significance, were implemented at national, regional or global scale for at least 5 years, and demonstrated a clear and measurable impact. Many of the examples utilize a new technology, whether a drug, vaccine or pesticide, and demonstrate the importance of political commitment, adequate and predictable funding, and an effective delivery system. The authors acknowledge that some of the best known examples are vertical programmes, which are centrally managed, disease-specific initiatives that are isolated from broader health services. Examples include campaigns to control guinea worm disease and river blindness and to immunize children against specific diseases. However, they argue that disease-specific efforts can complement and support health services, and they cite the polio eradication campaigns in Latin America, which strengthened the health infrastructure and surveillance systems and also improved the region’s ability to detect and control other health threats, such as measles, cholera and tetanus. Similarly, the authors assert that the community model of antibiotic delivery to control river blindness in central and east Africa has relevance for expanding primary health care in communities that would otherwise have limited access to health services.

Despite their different characteristics these successful cases were said to have in common strong leadership, effective management, realistic financing arrangements, country ownership and technical innovation (Medlin et al. 2006). However, as Medlin et al. acknowledge, there is no single approach to successfully delivering interventions at scale. The authors distinguish between interventions that are product-intensive, service-intensive, behavioural change and environmental control, and use this typology to examine how the characteristics of the intervention, together with the availability of resources and country political and institutional context, require different approaches to programme implementation (Medlin et al. 2006). This analysis resonates with the discussion earlier of intervention complexity.

**Sustaining scaling up and health system strengthening**

Although the desire to scale up has received substantial support over the last decade, in looking ahead the challenges will be to maintain the commitment, resources and momentum to deliver health interventions on a large scale. This requires sustaining the levels of development assistance that have been seen over the last decade, and efforts to increase human resource capacity and address the constraints that continue to limit the uptake or delivery of health services. Increasingly attention has focused on the need to strengthen health systems, as the impact of global health initiatives on country health systems is assessed (Banteyergera et al. 2006; Mtonya and Chizimbi 2006; Buve et al. 2007; Yu et al. 2008; Biesma et al. 2009; WHO Maximizing...
Positive Synergies Collaborative Group 2009). To a large extent the global health initiatives were initially intended as an emergency response to address the situation with the major communicable diseases, notably HIV/AIDS but also malaria and tuberculosis (Biesma et al. 2009). However, as the last decade has progressed there appears to be greater recognition that sustaining these health interventions requires improvements in the functioning of health systems.

Country health systems have benefited from improvements in health infrastructure, access to medicines and investment in human resources for health over the last decade, as discussed earlier. There have also been some attempts to integrate the global health initiatives into national systems for policy development and to harmonize donor involvement. However, experience shows that strengthening health systems can be extremely challenging and there remain parallel processes, such as for procurement or financial management, which divert attention from the reform of existing systems. Moreover, sustaining the commitment to scaling up is expected to face additional challenges that relate to recent developments in the global economic environment. In developed countries, governments face greater domestic needs, with the case for international development assistance competing, more than ever, with national spending requirements. In the recent MDG report, the threat of the global economic crisis on international aid flows is acknowledged and it is argued that existing commitments should be maintained or the progress made since 2000 may be undermined (United Nations 2009).

Conclusion

In this paper, we have discussed scaling up in the context of international health. We have reflected on the origins of the term, and its use to describe increasing coverage of health interventions as well as an increase in the resources required. In our subsequent discussion we have sought to clarify several issues that are pertinent to the scaling up of, and early progress in, health intervention delivery at scale.

The ambition to alleviate poverty and improve health outcomes at the turn of the century presented an incredible opportunity to transform the quality of life across the developing world. Over the last decade, we have witnessed an impressive commitment to improving health, with particular emphasis on the need to improve access to antiretroviral treatment. There were a number of attempts to estimate the amount of additional financial resources required, which all called for substantial increases in international development assistance. The increases in financial resources have been unprecedented, with international aid for health increasing to more than $20 billion by 2007 (Ravishankar et al. 2009). The influx of funds has been accompanied by major changes in the institutional landscape of global health, with the creation of several new health initiatives and innovative financing mechanisms. Other constraints to scaling up coverage of health interventions have also been discussed, and, among other things, these have encouraged the development of programmes to address the human resource shortages and use of non-state health providers such as NGOs and private sector actors.

Although there is an inevitable time lag between initiating efforts to scale up and the evidence of health improvement, recent data on global health outcomes suggests some progress in key health areas of HIV, malaria, tuberculosis and child health. At scale, it is not always easy to attribute reductions in mortality and morbidity to specific programmes, or to determine the relative contribution of different factors in the health system. However, it has been possible to report on intermediate outputs, such as the numbers sleeping under a bed net or receiving antiretroviral treatment, and there has been some analysis of large-scale health interventions that have worked well (Levine et al. 2004; Masanja et al. 2008; United Nations 2009). There is, however, limited evidence on alternative approaches to scaling up, and further work on the evaluation of complex interventions would be extremely valuable for developing strategies and implementation plans for scaling up health activities.

While the overall results are encouraging, it will be important to monitor the equity impact of scaling up, with the aim of obtaining a balance between increasing coverage overall and in hard-to-reach populations. Similarly, ensuring quality of service delivery over time is another challenge, which closely relates to the strengthening of health systems. It will also require substantial political commitment, which is likely to be difficult given the prevailing global economic climate. Nevertheless, it is essential that the efforts to increase coverage of health interventions continue if the impressive health improvements that have been achieved over the last decade are to be sustained.

References


ISSUES IN SCALING UP


