

Editorial: Contribution of health systems to disease control

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There is a longstanding debate about the relative benefits of programmes that focus on the control of specific diseases, and approaches that deal with the health system as a whole. The debate can be framed as one between the proponents of vertical programmes that focus on a single disease, e.g. smallpox eradication, and those that encompass a horizontal or integrated approach. Such an approach brings together common functions to address shared goals. However, in practice, there is a spectrum of programmes ranging from single disease vertical programmes to packages of interventions delivered vertically, through to programmes that are managed vertically but integrated in their delivery (e.g. Integrated Management of Childhood Illness), and finally those that are fully integrated into the health system. Research evidence on the best way forward is disappointingly scanty, e.g. a systematic review of strategies for integrating primary health services at the point of delivery in middle- and low-income countries detected only five eligible studies, from which no consistent pattern emerged (Briggs & Garner 2006).

Over the last three decades or so of global health strategies, there has been a trend away from the broad approach advocated in the Alma Ata declaration (WHO 1978), which was predicated on a high level of health-system support, intersectoral action and a long timeframe, towards a much narrower focus, a more vertical orientation, a shorter timeframe and a lower level of system support. This transition has evolved through the UNICEF selective primary health-care strategy of 1982, the influential World Bank Report of 1993 – *Investing in Health* – the Millennium Development Goals (MDG), the advent of the Global Fund to Fight AIDS, TB and Malaria (GFATM) and the ‘Three by Five programme’. It has coincided with the emergence of new actors with substantial resources at their disposal, such as GFATM and the Global Alliance for Vaccines and Immunization (GAVI), who are now expressing interest in strengthening the health systems of low-income countries.

Weak health systems implicated in the probable failure to attain the Millennium Development Goals

Despite substantial progress in many countries, there is concern that the MDG are unlikely to be attained,

particularly in sub-Saharan Africa, and that there are persisting, and in some cases widening, inequalities in health and wealth (Gwatkin *et al.* 2004; Wagstaff & Claeson 2004). Many of the barriers to the improvement of the delivery of interventions for a range of priority health topics, such as maternal health, child health, TB, malaria, HIV/AIDS, are common across these programmes (Travis *et al.* 2004). They include the lack of demand for effective services, multiple providers in the public and private sectors, lack of coordination between disease programmes and deficiencies in human resources with competition between programmes for scarce health personnel. Vertical programmes can also interfere with each other, e.g. disease-specific programmes [such as the delivery of anti-retroviral (ARV) therapy] that can offer higher salaries may attract staff from other programmes, which leads to the distortion of health-care delivery. Health personnel may become distracted by the need to fill in multiple forms and address requirements of multiple bureaucracies. Uncoordinated topic-specific training programmes can disrupt service delivery by increasing staff absence.

Financial resources

Growing awareness of these difficulties has led to a renewed interest in improving the functioning of the health system as a whole in order to address health priorities. Adequate financing is of course fundamental, and public funding is vital because health represents a market failure in that those most in need of care can least afford to pay for it (Tudor Hart 1971). Where governments do not have sufficient income from taxation to fund a health system, as in many low-income countries, other approaches, such as community-based health insurance and social health insurance, are often advocated. However, there is still limited evidence of what works best, and to what extent, to scale up financing while promoting equitable access to health care (Palmer *et al.* 2004). It does seem clear, however, that removing user fees improves access, as demonstrated in Uganda (Nabyonga *et al.* 2005). Comparing facilities where fees were removed with those where fees remained revealed that attendance at public facilities improved. However, to

A. Haines Contribution of health systems to disease control

ensure sustained improvements, it is necessary to increase budgets to protect the quality of care, to involve local health workers (not least to ensure that formal user fees are not replaced by informal under-the-table payments), to ensure adequate supplies of drugs and staff, and of course, to monitor utilization to ensure that the policy change has the desired effect.

Human resources

Human resources are centrally important in the delivery of disease-control priorities and the functioning of health systems but critical shortages of health workers are being experienced in 57 countries (WHO 2006). Globally, there is said to be a lack of 4.3 million doctors, nurses and midwives. While Africa has 25% of the world's disease burden, it has only 1.3% of health-service providers. The causes of this critical shortage vary from country to country. They include insufficient production, poor retention through both international and internal migration (e.g. from rural to urban areas), and in some countries, high death rates of health workers from HIV/AIDS. One policy response has been to train more community health workers and mid-level cadres, such as clinical officers and assistants.

There is growing evidence that community health workers can improve some health outcomes (Haines *et al.* 2007): through community-based detection and management of pneumonia in children (Winch *et al.* 2005); by improving immunization uptake and outcomes of malaria and acute respiratory infections (Lewin *et al.* 2005); and by reducing neonatal mortality through home-based management of sepsis (Bang *et al.* 1999, 2005). A key issue is whether such programmes can be scaled up to large populations while maintaining sufficient quality to ensure the desired impact. One example is the Lady Health Worker (LHW) programme in Pakistan [Oxford Policy Management (OPM) 2002], which trains around 100 000 LHW for approximately 6 months (longer than many community health workers). They look after around 200 families each and support breastfeeding and immunization, prevent and treat illnesses, such as malaria and diarrhoea, and promote the uptake of modern family planning. LHW are trained to refer when necessary and receive regular supervision. There is preliminary evidence that they reduce perinatal mortality (Memon *et al.* 2007). Although the programme has weaknesses, such as low salary, poor career prospects and logistics, it does demonstrate that such schemes can be scaled up to reach large populations and that with appropriate training and supervision, they can have an impact on major health outcomes.

Stewardship, regulation and improving performance

Another crucial function of health systems is stewardship, which includes strengthening the accountability of health services to communities and increasing the user voice in deciding how services are delivered. One example of how a disease-control programme can successfully engage and involve users is the African Programme for Onchocerciasis Control (<http://www.apoc.bf/en/>), which has involved more than 100 000 communities in community-directed treatment with ivermectin. This approach involves early engagement of communities in discussing how best to deliver ivermectin and seeks to strengthen the local health system by involving local health workers from the outset. In both Ghana and Kenya, ivermectin treatment coverage is substantially higher than in other areas where the intervention is delivered through regular health services. Additionally, using a similar approach to deliver home treatment of malaria to young children and to promote the use of insecticide-treated nets for children under five, resulted in substantially higher uptake in comparison with districts where the regular health service approach was used or where the community-directed approach was used only for onchocerciasis (H. Remme, personal communication). This is a good example of how an approach to strengthen a disease-specific control programme can be used to improve the quality of care and the uptake of interventions for another disease and thereby contribute in strengthening the health system as a whole.

In many countries, the private sector provides a substantial proportion of healthcare and hence must be engaged to improve the quality of care. The potential impact can be illustrated by research on the drug retail sector in Tanzania and Kenya. In three districts in Tanzania, in seeking treatment for a fever in young children, 29% of carers visited a health facility and 61% visited a shop (Goodman *et al.* 2004). Substantial weaknesses in the quality of care were identified: only around 50% of febrile children received anti-malarials, a high proportion of tablets was sold loose, many sulfadoxine-pyrimethamine (SP) samples were of poor quality, and incorrect dosing was common. However, the local population perceived the retail sector as easily accessible and providing high quality care with more reliable supplies than the government sector. In the absence of well-functioning and accessible government facilities, treatment could be improved through accreditation of retailers, training, consumer education and the pre-packaging of drugs. In Kenya, the percentage of shop-treated febrile children receiving an adequate anti-malarial dose increased markedly after a training programme for drug retailers (Marsh *et al.* 2004).

A. Haines **Contribution of health systems to disease control**

Poor quality of care is a pervasive problem in both public and private sectors, and for this reason, there is a growing interest in approaches to improve the performance of the existing health workforce (WHO 2000) (Rowe *et al.* 2005). These may include the use of audit and feedback of performance, supportive supervision, computer-based approaches and educational outreach involving small groups with active learning strategies. Performance-related allowances may also have a beneficial effect (Harries & Salaniponi 2005).

One approach to achieve a more efficient use of resources is through better knowledge management. The work of de Savigny *et al.* in Tanzania has demonstrated that providing decision support tools for district-level decision makers, by linking the burden of disease data with data on expenditure on interventions for different health outcomes, influences resource allocation. Such an approach can demonstrate discrepancies between the two and indicates how realigning expenditure with interventions addressed to local disease priorities can result in major reductions in under-five mortality (de Savigny *et al.* 2004). This has led to the development of a multi-sectoral tool for performance budgeting, which links health expenditures to government financial codes, Ministry of Health (MoH) guidelines, national priorities and the MDGs, and has the potential to improve resource use in all districts and in a range of sectors.

The challenge of HIV/AIDS and the need for a health-system approach

Scaling up of anti-retroviral therapy (ART) represents a major challenge to health systems in many low-income countries. In Malawi, e.g. 170 000 people out of a population of 11.5 million need ART. A major scale up of ART delivery has been developed in response to this challenge (A. D. Harries, personal communication). Using the TB-control structure as the 'model', and with the aim of supporting the health system by training paramedical officers in existing health facilities, the programme aims for standardization of the major elements of ARV delivery. A cumulative analysis of experience between 2004 and 2006 demonstrates that impressive results can be obtained in a very low-income setting with a well-organized and supported programme: only 9% loss to follow-up, and more than 81 000 people started on ARV in the public sector.

In order to stop the progress of the HIV epidemic, effective delivery of ARV must be complemented by a broader health-system approach. A recent progress report (WHO *et al.* 2007) on scaling up access to priority HIV/AIDS interventions in the health sector shows that the coverage of preventive approaches is very limited (Box 1).

Box 1 Scaling-up access to ART (WHO, UNAIDS, UNICEF 2007)

Approximately 28% ART coverage (1.3 million) in sub-Saharan Africa by December 2006
 Approximately 15% ART coverage in children
 In high-burden countries (2005), only 12% men and 10% women had been tested and received results
 Only 13% TB patients tested in countries with generalized epidemics
 Low coverage of PMTCT (approximately 11%)

ART, anti-retroviral therapy; PMTCT, prevention of mother-to-child transmission of HIV.

Thus, unless a range of services, such as those covering mother and child health, TB, sexually transmitted infections and family planning, are involved in tackling HIV/AIDS, opportunities for prevention will be lost and it will prove difficult to keep pace with the burgeoning demand for treatment.

Are disease-specific and health-system approaches in conflict?

Disease-specific and health-system approaches are not necessarily in conflict but can be mutually supportive. Disease-specific efforts should contribute to health-system strengthening, not detract from it. Where feasible and appropriate, interventions should be packaged together for delivery. Resource management must be strengthened, particularly at the district level, to ensure that human and financial resources are responsive to local priorities with the aim of maximizing impact. Many of the barriers to improved delivery are common across a range of health programmes and can be best addressed by common strategies. Disease-control programmes and health systems should not be considered as adversaries, but are potential allies in the struggle to improve public health for disadvantaged populations.

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A. Haines **Contribution of health systems to disease control**

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