

Chapter 3

Strengthening Health Systems



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Interventions are not generally provided as freestanding activities but are delivered in a variety of packages and through different levels of a health system.¹ For this reason, this book—in addition to including the disease- and program-specific chapters—addresses not only the cost-effectiveness of levels of care, packages of care, and services but also the strengthening of the management of health systems as a whole.

Cost-effectiveness data reflect largely what can be achieved in a reasonably well-functioning health system. In that sense, they can be considered to represent potential cost-effectiveness and need to be supplemented with evidence and guidance on how health systems can be strengthened to provide interventions effectively, efficiently, and equitably. This argument is given added weight by evidence on inadequacies in the performance of health institutions in countries at all levels of development (Hensher 2001; Preker and Harding 2003). Hensher (2001) documents the extensive inefficiencies in low- and middle-income countries, including the following:

- failure to minimize the physical inputs used—for example, prescribing excessive quantities of drugs
- failure to use the mix of inputs that costs the least—for instance, allocating a high proportion of expenditure to staff salaries and only a small share to operating costs and maintenance
- failure to operate at the appropriate scale—for example, running extremely large hospitals that suffer from scale inefficiencies
- failure to pay staff enough to encourage good performance.

Hensher estimates that hospital inefficiencies could easily account for up to 10 percent of total health spending.

Such inefficiencies have two main causes. First, they may occur because decision makers lack incentives to behave efficiently; for example, their promotion chances may not depend on how well they perform in managing a hospital. Second, decision makers may be constrained in their ability to make efficient choices; for instance, they may lack knowledge or experience of what to do or political factors may affect whether they can dismiss underperforming staff members or determine which company they must buy drugs from. Evidence on the quality of care (chapter 70) demonstrates that health systems may not merely be inefficient in failing to minimize costs but may also fail to deliver effective care.

The extent of inequities is also a major concern. Recent analyses show that even when interventions are provided, the poorest members of society usually have the least access to them (Gwatkin and others 2000). In many countries, gaps in child mortality between the poor and the better off widened during the 1990s (World Bank 2004). Thus, health systems need to have the capacity not only to deliver interventions efficiently but also to sustain high levels of coverage, especially of the poorest and most vulnerable.

Awareness has grown that international targets, such as the Millennium Development Goals (MDGs) and the provision of antiretroviral treatment for HIV/AIDS patients cannot be achieved without the key elements of a functioning health system. The example of the reduction of maternal mortality in Sri Lanka (chapter 8) demonstrates the improvements in health outcomes that are possible once a basic platform of functioning health services is available on which targeted initiatives can build (Levine 2004).

Thus, the aim of this chapter is to review how health systems can be strengthened in differing country contexts to deliver

interventions effectively, efficiently, and equitably. The chapter is mainly concerned with strengthening health services: issues in managing core public health functions are reviewed elsewhere (Khaleghian and Das Gupta 2004). Although the chapter seeks to draw valuable lessons from all parts of the world, it focuses on countries with the least capacity, especially the poorer countries in Sub-Saharan Africa and Asia.

HISTORY AND CURRENT THEMES

Efforts to improve health in low- and middle-income countries over the past 50 years can be divided into a number of periods, with pendulum swings between focused, disease-specific support and broader health service or health system support. The 1950s, 1960s, and 1970s witnessed a number of successful disease control efforts, often termed *mass campaigns*—notably smallpox eradication, but also, for example, malaria and yaws control (Walt 2001). These mass campaigns built on earlier efforts, including those of the Rockefeller Foundation from the 1920s in controlling hookworm, yellow fever, and malaria. Despite regional differences in the degree of progress—for example, malaria control was not attempted in most of Sub-Saharan Africa—successes in regional and global control of diseases such as Chagas disease and measles in Latin America and the Caribbean and, more recently, polio worldwide have continued since the 1960s.

From early in the history of mass campaigns, the terminology used was of *vertical* and *horizontal* approaches (Gonzalez 1965), referring essentially to two key dimensions in program organization (Mills 2005): the extent to which program management was integrated into general health systems management, especially at lower management levels, as opposed to kept strictly separate, and the extent to which health workers had one function as opposed to many functions. Vertical programs (also known as *categorical programs*) had their own financing, management structures, and staff, even down to the service delivery level, instead of relying on existing systems. In contrast, horizontal programs delivered a number of services through the general health service structure.

In malaria control, for example, the World Health Organization defined a process whereby an initial vertical approach would evolve into a horizontal approach as the incidence of malaria fell. Initially, the effort required to detect and treat cases demanded dedicated and mobile workers. As transmission was reduced, these workers would detect fewer and fewer cases, so on efficiency grounds, detection and treatment activities needed to be handed over to the general health service infrastructure. However, this approach faced the dilemma that such services were often not strong enough to carry the control efforts forward.

The Alma Ata Declaration of 1978 was a turning point. The increasing emphasis on building networks of peripheral health

services in a number of postindependence Sub-Saharan African countries and the health successes of countries such as China and Cuba influenced a new international emphasis on a broadly based definition of primary health care. Quickly, however, the advocates of more focused disease-specific efforts responded with the notion of selective primary health care (Walsh and Warren 1980), focused on a limited number of presumed cost-effective interventions.

Since 1980, this tension in international health policy has persisted, with four main strands, namely:

1. The health care reform movement of the 1990s, which has continued into the new millennium in a somewhat attenuated form, has focused almost exclusively on financing and organizational changes, largely neglecting the question of whether improved health outcomes have been achieved.
2. The definition and development of cost-effective packages of care has progressed, as reviewed in chapter 64, with some attention given to their implications for services and systems.
3. The emphasis on specific disease-focused international programs, as reflected in the Global Fund for AIDS, Tuberculosis, and Malaria, has been increasing, and resources for such programs have been expanding.
4. The effort to encourage investment in integrated health services has continued.

Recent events indicate that these tensions remain unresolved. For example, Molyneux and Nantulya (2004) call for combining community-driven, global health initiatives (including drug distribution for schistosomiasis, filariasis, and onchocerciasis; trachoma control; bednet distribution for malaria control; and immunization), with little mention of how community-based efforts might link with the general health infrastructure. In contrast, Unger, de Paepe, and Green (2003) examine how best to implement disease control programs so as to strengthen existing health systems and propose a code of best practice for such programs.

This debate is being given a new urgency by the introduction of treatment for HIV/AIDS. Immunization can be delivered using either a vertical or a horizontal approach. HIV/AIDS treatment, which requires continuing care, calls for strong health service backup. Nonetheless, such treatment services could be organized so that they isolate themselves from the broader health system—say, through separate clinics with their own workers and separate laboratories—or they could contribute to a greater degree of integration by sharing resources.

The implications of these different approaches for health system change are not purely academic. Table 3.1 compares the responses to health system constraints that derive from a

Table 3.1 Typical Health System Constraints and Possible Disease-Specific and Health System Responses

Constraint	Disease-specific response	Health system response
Financial inaccessibility: inability to pay, informal fees	Allowing exemptions or reducing prices for focal diseases	Developing risk-pooling strategies
Physical inaccessibility: distance to facility	Providing outreach for focal diseases	Reconsidering long-term plans for capital investment and siting of facilities
Inappropriately skilled staff	Organizing in-service training workshops to develop skills in focal diseases	Reviewing basic medical and nursing curricula to ensure that basic training includes appropriate skills
Poorly motivated staff	Offering financial incentives for the delivery of particular priority services	Instituting performance review systems, creating greater clarity about roles and expectations, reviewing salary structures and promotion procedures
Weak planning and management	Providing ongoing education and training workshops to develop planning and management skills	Restructuring ministries of health, recruiting developing a cadre of dedicated managers
Lack of intersectoral action and partnership	Creating disease-focused, cross-sectoral committees and task forces at the national level	Building systems of local government that incorporate representatives from health, education, and agriculture, promoting the accountability of local governance structures to the people
Poor-quality care among private sector providers	Offering training for private sector providers	Developing accreditation and regulation systems

Source: Travis and others 2004.

disease-specific focus as opposed to a health systems focus. A disease-specific focus leads to solutions for the specific program, whereas a health systems focus identifies a somewhat different set of reform priorities that relate to system-level changes and affect disease management across multiple diseases and conditions. The disease-focused responses can generally be implemented relatively quickly, whereas the systems-focused actions take longer. However, numerous, separate disease-specific responses can rapidly overwhelm frontline workers and managers.

HEALTH SYSTEM CONSTRAINTS ON THE DELIVERY OF PUBLIC AND PERSONAL HEALTH SERVICES

The challenge of scaling up services to meet the health-related MDGs and concerns that the multiple international efforts may overwhelm countries' fragile infrastructures have encouraged efforts to think systematically about health system constraints on achieving the MDGs, and the extent to which additional funding can readily and quickly improve services (Ranson, Hanson, and Mills 2003; Travis and others 2004). Weaknesses in service delivery—for example, at the health center level—may stem from problems at that level, such as staff shortages, or may be affected by factors higher up the system, such as a poor drug distribution system. Ranson and others (2003) therefore analyze constraints by five different levels: community and household, health services delivery, health sector policy and strategic management, public policies cutting across sectors, and environmental and contextual characteristics (see table 3.2).

At the community and household level, lack of demand can limit coverage. This lack may stem from cultural factors, such as low acceptability of immunization or prenatal care, but it may also result from financial and physical barriers to access. For example, estimates indicate that, in Niger, children under five average only 0.5 visits to a health provider per year, and in Bangladesh, only 8 percent of ill children were taken to a qualified provider (see chapter 63). Many barriers can be reduced by increasing accessibility, for example, by expanding the service infrastructure closer to communities. In Cameroon, Litvack and Bodart's (1993) study finds that a combination of user fees and improved quality, including a better drug supply and improved geographic access, led to increased use despite the user fees.

Low use may stem less from inaccessibility than from low quality at the level of health care delivery. Low quality can result from human resource shortages, limited incentives for the staff to provide good quality care, training inappropriate to local needs, poor drug supply systems, and lack of simple equipment such as that needed to measure blood pressure (Southern Africa Stroke Prevention Initiative Project Team 2004). In Tanzania, an analysis of the treatment-seeking decisions of those who later died from malaria showed that the great majority had preferred modern medicine, even for cerebral malaria, which according to a substantial body of evidence mothers view as a condition best treated by traditional healers (de Savigny and others 2004). Yet despite high rates of seeking modern medicine, malaria mortality remained high, whether because of delay in seeking treatment, poor quality care, or poor patient adherence. Treatment quality can be improved by increasing resources, although it may also demand change

Table 3.2 Constraints on Improving Access to Essential Health Interventions, by Level

Level of constraint	Types of constraints
Community and household	Lack of demand for effective interventions Barriers to the use of effective interventions (physical, financial, social)
Health services delivery	Shortages and inadequate distribution of appropriately qualified staff Weak technical guidance, program management, and supervision Inadequate drugs and medical supplies Lack of equipment and infrastructure, including poor accessibility of health services
Health sector policy and strategic management	Weak and overly centralized planning and management systems Weak drug policies and drug supply system Inadequate regulation of pharmaceutical and private sectors and improper industry practices Lack of intersectoral action and partnership for health between government and civil society Weak incentives to use inputs efficiently and to respond to users' needs and preferences Reliance on aid agency funding, which reduces flexibility and ownership Aid agency practices that overload country management capacity
Public policies cutting across sectors	Government bureaucracy (civil service rules and remuneration, centralized management system) Poor availability of communications and transportation infrastructure
Environmental and contextual characteristics	Governance and overall policy framework: <ul style="list-style-type: none"> • Corruption, weak government, weak rule of law, weak enforceability of contracts • Political instability and insecurity • Low priority attached to social sectors • Weak structures for public accountability • Lack of a free press Physical environment: <ul style="list-style-type: none"> • Climatic and geographic predisposition to disease • Physical environment unfavorable to service delivery

Source: Hanson and others 2003.

higher up the system; for example, better health worker performance may not be possible without reforming human resource management systems.

Performance at the third level, health sector policy and strategic management, can have a pervasive influence on performance at lower levels and is less easy to address through additional funding alone. Some improvements, such as orienting management more toward good performance and reduced corruption, may require a change in organizational culture or a change in structures—for instance, decentralizing authority or creating autonomous agencies. Such changes can be difficult and may take time to implement (Preker and Harding 2003). Other improvements require action outside the country—for example, a change in aid agency practices so that weak country management structures are not overloaded by multiple demands and reporting structures.

Finally, at the highest levels, broad multisectoral public policies and environmental and contextual characteristics set limits on what the health sector can change without help. For exam-

ple, wage policies for the public sector health staff are usually set centrally and linked to overall levels of pay for the public sector. Even if funds are available, increasing the wages of only health staff members may not be possible.

At this highest level, constraints also reflect much broader institutional influences, as was demonstrated by recent analyses of the results of efforts to build state capacity in Africa. Levy's (2004) review points out that the results are mixed at best. For example, of all World Bank civil service reform projects completed by 1997, only 29 percent were rated as satisfactory by the operations evaluation department. Levy argues that a key reason for the limited success was an implicit presumption that the weakness of public administration was managerial and could be remedied through organizational change and financial support for technical advice, hardware, and training. However, public administrations are part of political institutions and of social, economic, and political interests more broadly, and they do not change readily or quickly. Nevertheless, windows of opportunity may open that drastically

affect the chances of change within a few years. Consider the cases of Mozambique, Rwanda, and Uganda, all countries that experienced many years of conflict and economic collapse but that have since made significant progress in reforming government institutions and performance. Apart from those exceptional cases, Levy argues that the way forward for administrative reform is likely to be an incremental one.

In general, straightforward shortages of buildings, equipment, and drugs and a lack of specific skills on the part of health workers and managers can be addressed fairly rapidly with additional funding. Remedying staff shortages takes somewhat longer, especially if the education system is producing insufficient numbers of people with the qualifications needed to enter health training programs. The constraints most impervious to additional funding are likely to relate to broader systems and institutional deficiencies, such as a bureaucratic culture that does not reward good performance and political systems that ignore the voices of the poor. Long-term and carefully phased capacity building in the broadest sense, including political development and strengthened governance structures, is likely to be required to relax these constraints (Mills and others 2001).

ASSESSMENT OF APPROACHES TO STRENGTHEN HEALTH SYSTEM CAPACITY

Strengthening health system capacity to improve performance is a wide-ranging subject, likely to require action—often simultaneously or appropriately sequenced—on many fronts. In particular, it requires attention to the various functions of the health system, especially to the various dimensions of management, as well as to the relationships between the health system, its patients (clients), and their communities. Evidence on which approaches work best is limited. The coverage of this section is therefore selective, drawing on chapters in part III and focusing on stewardship and regulation, organizational structures and their financing, and general management functions—namely, human resources and quality assurance.

When possible, we identify general lessons and note instances of relevant country experiences. In interpreting them, readers will need to keep in mind the strengths and weaknesses of their own country's health system. For example, in South Africa, where basic hospital supplies are good, improved training of health staff members reduced case-fatality rates for severe malnutrition, whereas in settings that experience shortages of antibiotics, potassium, and milk powder and that lack a doctor, training alone is highly unlikely to reduce high case-fatality rates (Ashworth and others 2004).

Stewardship and Regulation

Saltman and Ferroussier-Davis (2000, 735) explain stewardship as a “function of governments responsible for the welfare of populations and concerned about the trust and legitimacy with

which its activities are viewed by the general public.” The importance of the stewardship role is indicated by analyses that suggest that, in countries with good governance, a relationship is apparent between increased health spending and reduced child mortality (chapter 9), but that such a relationship is not apparent in countries that scored less well on indicators of good governance.

Strengthening structures of accountability to communities and introducing mechanisms to ensure that users have a voice in the local health system and can influence priorities are likely to be important in encouraging good performance. Methods to increase the transparency of resource allocation to peripheral services are also needed. In Burkina Faso, participation by community representatives in public primary health care clinics has increased the coverage of immunization, the availability of essential drugs, and the percentage of women who get two or more prenatal visits. In Ceara, Brazil, strengthened community accountability mechanisms helped improve service delivery (chapter 9). Factors identified as important to the success of community-based health and nutrition programs in chapter 56 include the existence of an effective, respected, and socially inclusive organization at the community level that builds on established community procedures.

Because of the substantial role that private sources of care play in almost all low- and middle-income countries, regulating and developing creative ways to work with the private sector are important. This effort needs to be seen as part of the stewardship role. Even though most countries have a network of regulations controlling private providers and products such as drugs, the regulations are often outdated and poorly enforced and can even be counterproductive (box 3.1).

Evidence is growing that using a mix of measures to influence both consumers and providers can improve the quality of care obtained through private providers. Chapter 70 provides several examples, including introducing total quality management practices and training with peer review feedback. Providers in the informal sector are some of the hardest to reach because of their wide distribution, small scale, and minimal education; however, some evidence indicates that their dispensing practices can be improved (box 3.2).

Regulation can be used as an intervention in its own right, as well as a way to improve health service delivery. The list of interventions identified as success stories (chapter 8) includes these in which a change in regulation was at the root of success:

- regulations requiring all sex workers in brothels to use condoms in Thailand
- tobacco control legislation in Poland and South Africa
- provision of a legal and regulatory framework for adding fluoride to salt in Jamaica
- legislation banning the sale of noniodized salt in China.

Box 3.1

Bringing de Jure and de Facto Regulations in Line

In Tanzania, local drug shops are important sources of drugs. They are required to obtain a permit each year and to meet certain conditions related to premises, qualifications of the seller, and products (nonprescription medicines only). A study in three districts found that, despite regular inspections of drug shops, infringement of the regulations was widespread—including the sale of prohibited or inappropriately packaged drugs, which inspectors must have known about. Illegal drug sales may have contributed to poor-quality treatment and encouraged the development of drug resistance, but they had important benefits in terms of accessibility, because drug supplies in drug shops

were more reliable than those in government facilities. Revising the regulations to permit drug shops to stock a small set of oral antibiotics, for example, would allow more constructive engagement between sales staff members and regulators, including the provision of information on essential drugs, registered brands, appropriate dosing, and consumer advice. The Strategies for Enhancing Access to Medicines Project is experimenting with allowing a wider range of drugs to be provided in one region using accredited outlets for dispensing drugs (drug shops that meet specified quality criteria and whose staff members have been trained by the project).

Source: Goodman 2004.

Box 3.2

Improving the Quality of Drug Dispensing by Private Sector Shops

In Kilifi district, Kenya, an education program piloted by the Kenya Medical Research Institute–Wellcome Trust Collaborative Research Programme worked with district health managers to train and inform rural drug retailers and communities. Its effect was evaluated by means of annual household surveys of drug use and shop surveys in an early and a late implementation area. The program showed major improvements in drug-selling practices.

Between 1998 and 1999, the proportion of antimalarial drug users obtaining an adequate dose rose from 8 to 33 percent, and by 2001, with a national change to sulfadoxine pyrimethamine, to 64 percent. The proportion of those with malarial fevers who received an adequate dose of a recommended antimalarial drug within 24 hours rose from 1 to 28 percent by 2001.

Source: Marsh and others 2004.

Given that enforcement is the Achilles heel of regulation, a noteworthy point is that these countries are all middle-income countries with a reasonable level of enforcement capacity. In other countries, approaches such as that outlined in box 3.2, where the authorities work with the private sector rather than seeking to control it, may have a better chance of succeeding.

Organizational Structures and Financing

The appropriate configuration of health system structures can ensure a clear delineation of responsibilities and accountabilities inside organizations, linking performance with rewards. Governance and organizational structures can also help ensure organizations' accountability to the public.

In recent years, the approach known as *new public management*, explained further in chapter 73, has encouraged a rejection of traditional, hierarchical forms of public sector management, whereby a single organization both finances and provides health services. For example, the U.K. health service has introduced a clear separation between the entities purchasing services (deciding what services are required for a given population and allocating funds for them) and those providing services. One aim of such arrangements is to ensure that providers' interests—as opposed to users' interests—do not dominate decisions on what services are funded. In addition, separating purchasers and providers allows competition to be introduced in service provision. Although introducing competition is widely considered desirable to encourage efficiency, debate continues on the magnitude of potential adverse effects.

Examples of new organizational structures include removing national health services from civil service control, introducing executive agencies to manage health services, and using contracts to govern relationships, both within the public sector (between public purchasers and public providers) and between the public and private sectors (Preker and Harding 2003). Colombian reforms introducing competition in both insurance and provider markets are among the most comprehensive. Another reform example is Ghana's creation of the Ghana Health Service, which is separate from the Ministry of Health.

The high transaction costs involved in creating and managing these types of arrangements and the lack of evidence that competition improves the quality of care have moderated initial enthusiasm for new forms of public management. In addition, critics argue that such arrangements are more demanding on management capacity than is direct service provision (Mills and others 2001). Moreover, implementation has proved challenging. For example, in Trinidad and Tobago and in Zambia, reforms to create new health service agencies have

run into major opposition from public sector workers, who oppose changes in their terms and conditions of service.

Some of the more successful elements of new public management reforms are those that involve contracting out services, especially to nongovernmental organizations (NGOs). Early evaluation of contracting experiences indicated that, even though contracting had been perceived as a way to avoid the inefficiencies inherent in public sector provision, it nonetheless required public sector capacity to manage the contracting process (Mills 1998). This situation was particularly a problem if the contractor was a commercial firm or individual provider with incentives to maximize profits (box 3.3). Contracting with individuals and firms that are strongly influenced by a profit motive requires a certain level of state capacity to ensure that the arrangements work in the interests of the state and the general public. In some countries, therefore, NGOs may be more appropriate service providers (Palmer and Mills 2003). A number of quite positive results from contracting with NGOs are now available (World Bank

Box 3.3

The Importance of Government Capacity: Contracting Out Health Services in South Africa

Successive studies have evaluated experiences in contracting out hospital care and primary care services in South Africa. The hospital study compared three district hospitals whose management had been contracted out to the same private company with three nearby, comparable, publicly managed district hospitals. Overall, the contractor hospitals were able to provide care of more or less equivalent quality at significantly lower cost to themselves—in major part because their productivity was more than double that of the public hospitals as a result of their effective human resource policies. However, the contractor captured all the efficiency gains as profit, leading to a situation where contracting out was actually more costly for the government than direct provision. The contractor's capacity to profit from the arrangement was due mainly to its ability to secure highly favorable contract terms and prices and to ensure a high total number of days of care. Interview data confirmed a substantial imbalance between the government and the contractor in relation to the skills, capacities, and information required to negotiate contracts. In addition, government officials underestimated the extent of potential competition for contracts and therefore overestimated their dependence on the one contractor.

A similar study evaluated the performance of contracts with general practitioners for primary care in two provinces and compared their performance with that of public clinics. General practitioners' costs were similar to those of small public clinics, but the service was generally of poorer quality. Exploration of the relationship between purchasers and providers found that the contract was incomplete and open to interpretation and that monitoring was constrained both by a lack of capacity and resources and by the difficulty of monitoring a complex service delivered in remote locations. Sanctions were vaguely specified and rarely used because of a sense of mutual dependence between parties to the contract that lessened their willingness to enter into disputes. In addition, the two provinces varied in terms of their capacity to monitor performance. The province with lesser capacity had little information about general practitioners' performance and little contact with them, which seemed to increase suspicions of what general practitioners were doing. In contrast, the province with greater capacity had a better information system and a decentralized management system that led to greater contacts between managers and general practitioners and an apparently greater degree of understanding between the parties.

Sources: Broomberg, Masobe, and Mills 1997; Mills and others 2004; Palmer and Mills 2003.

2004), and the example of Cambodia is one of the most frequently quoted (chapter 13). Nevertheless, most evidence comes from programs with substantial external financial and technical resources, and long-term experience of sustainability is lacking.

Management decentralization has been another continuing theme in recent years. One variant is its application to hospital management, which involves giving hospitals autonomous or corporate status along with much greater responsibilities for raising income and managing their own affairs. A second variant is the creation of autonomous government agencies, and a third is decentralization to general management structures at lower levels, such as a health authority or local government.

Some pushing down of the locus of control over decision making is a prerequisite for effective management at the local and facility levels. However, without the necessary resources and management expertise at these levels and the right incentives, adverse consequences may arise for both efficiency and equity. For example, experience with hospital autonomy in low-capacity settings suggests that making the hospital partially dependent on fees for its income will restrict access by the poor to the hospital and also worsen the care they receive when admitted (Castaño, Bitrán, and Giedion 2004). However, for nonpatient care services, whose functions are easier to specify and monitor, autonomous agencies may have some advantages. For example, the Tamil Nadu Medical Supply Corporation has greatly improved the efficiency and effectiveness of drug purchasing and distribution (Mills and others 2001).

For decentralization of general health service management to succeed, attention must be paid to the entire management system, including management skills, information, analytical tools, and accountability mechanisms both to the community and to higher levels of management. Because decentralization is a complex process, takes a variety of forms, and is affected by the local context, research on its merits and demerits has been inconclusive (Alliance for Health Policy and Systems Research 2004). Some evidence indicates that decentralization to local governments can lead to neglect of broader public health functions and disease control, because these types of care are less visible to the public than curative care, as Khaleghian and Das Gupta (2004) indicate occurred in the Philippines.

Reviews of the merits of integrating services and of the effect of vertical programs on health systems have also been inconclusive. Some positive examples are available, such as the strengthening of health infrastructure and surveillance systems by the polio elimination campaign in Latin America and the Caribbean (Levine 2004). Nonetheless Briggs, Capdegelle, and Garner's (2001) review of the effects of strategies for integrating primary health care services on performance, costs, and patient outcomes finds too few studies of good enough quality to draw firm conclusions.

Human Resources

Achieving health policy goals depends on being able to train, recruit, and retain a staff with the necessary bundles of skills. In planning for human resource needs, countries must relate the numbers and levels of each category of staff members to health policy goals and the priorities that are set, given the overall availability of resources and local labor market constraints.

In recent years, concerns about the international brain drain have increased greatly, with evidence indicating that migration by doctors and nurses is severely affecting health services in some Sub-Saharan African countries (Physicians for Human Rights 2004). Actions by developing countries to improve recruitment and retention should either raise the rewards, both financial and nonfinancial, of local employment or reduce the attractiveness of alternative employment—for example, by making qualifications less portable across countries (chapter 71). Raising the remuneration of health workers may be difficult because it is likely to lead to demands for increased pay from other public sector employees. There is a long history of making use of local cadres, which can also allow training that is more specific to the needs of the local health system and its priorities.

Examples include nurses with extended training and roles and people working at subnurse levels with training of a few weeks to three years. For example, Bangladesh employs family welfare visitors, health assistants, and medical assistants; Uganda provides three years of training to clinical officers, who function as subdoctors, and three months of training to nursing aides; and Malawi trains clinical officers, who carry out surgical procedures and administer anesthetics in addition to providing medical care. Despite widespread use of such workers, evidence on how they perform relative to more qualified staff members is limited, though a study of clinical officers in Malawi suggests that well-trained clinical officers can safely substitute for doctors in performing cesarean deliveries (Fenton, Whitty, and Reynolds 2003).

The salaries necessary to recruit and retain staff members will depend on the opportunities they have for other employment both within the country and in other countries. Salary levels will also depend on health workers' preferences between financial and nonfinancial incentives. Evidence suggests that influences on motivation, though reflecting universal principles, will vary considerably from place to place (Brown 2002). Therefore, compensation and incentive structures need to be adapted to countries' circumstances; however, evidence is scanty on how countries have attempted to adapt such structures and whether they have been successful in improving recruitment and retention.

One approach to improving health workers' performance is to link performance and remuneration. The Chinese national tuberculosis (TB) program, identified as a success story (chapter 8), provided village doctors with incentives to treat TB

patients. However, performance-related pay requires a good regulatory framework, skilled managerial resources, and careful monitoring to counter adverse effects—all features that are unlikely to be available in countries with limited capacity. Even in China, other experiences are much less positive because managers were not required to take likely adverse health consequences into account (box 3.4). Similar comments apply to the widespread practice of allowing doctors to work in both the public and the private sectors to increase their incomes. Doctors may exploit their private practice rights by encouraging patients to attend privately if they want better quality care—or even by diverting government resources, such as drugs, to private patients. Thus, the effects of private practice on incentives in public practice tend to be negative unless carefully monitored and controlled.

Nonmonetary rewards to encourage staff retention can be useful in such settings, as well as easier to manage. They include

the availability of facilities and materials; of opportunities for learning and career progression; of subsidized housing and education for dependents; and of a culture that values the contribution of health workers to the achievement of organizational and system goals. In addition, the methods and levels of funding, the extent of organizational autonomy, the nature of support and supervisory systems, the role of the organization and of providers in the health system, and the regulation and accountability structures all influence how organizations and individuals function. Thailand provides an example in which the provision of both monetary and nonmonetary rewards has improved the recruitment, retention, and status of rural doctors (box 3.5).

The introduction of well-funded disease control programs runs the risk of attracting the most able staff members away from other positions. Past programs have successfully used combinations of financial and other incentives to encourage

Box 3.4

Incentive Payments in China

China has made wide use of incentive payments in hospitals—and even in public health programs. Research suggests that such payments have deleterious effects when their ability to skew behavior is not controlled. In Shandong province, studies found that a change in the bonus system for hospital doctors from one that was tied to the quantity of services provided to one that was tied to revenue generated was associated with a significant increase in hospital revenue. About 20 percent of hospital revenue was generated by the provision of unnecessary care. Although data did not permit linking bonus type to

quality of care, the bonus system was clearly designed to achieve financial goals rather than quality goals. Furthermore, during the 1980s and 1990s, the government provided a decreasing share of the income of public health institutions, and the share of service charges greatly increased. As a result, public health institutions became heavily dependent on generating their own income. Negative effects included duplicate inspections of factory premises by different public health units, excessively frequent inspections, and neglect of less profitable factories that were less able to pay inspection charges.

Source: Liu and Mills 2002, 2003.

Box 3.5

The Role of Financial and Nonfinancial Incentives in Thailand

Thailand has experienced periods of severe medical brain drain from the public to the private sector and has had great difficulties in staffing hospitals in rural areas. Since the late 1970s, policies have been directed at making service in rural areas more attractive. Measures include substantial salary increases, good working conditions in district hospitals, and provision of housing. Professional

self-esteem has been increased by providing career opportunities up to the post of deputy director general, an annual award for rural doctors, and membership in the rural doctor society. Substantial experience as a rural doctor is explicitly valued by leading public health specialists, who themselves have spent substantial periods working as rural doctors.

Source: Wibulpolprasert and Pengpaiboon 2003.

Box 3.6

Improving Staff Performance in Cambodia

An NGO contracted to manage a district in Cambodia introduced contracts between the NGO's managers and facility staff members involving a monthly incentive payment, a punctuality incentive, and a performance bonus. The contracts were initially introduced in three facilities, which subsequently experienced significantly higher use levels than those that did not have the incentive payments. Because individual contracts were too demanding to manage and excluded health center and hospital directors from staff management, the system was changed to one of subcontracting with facility managers. Output improved even

Source: Soeters and Griffiths 2003.

more. Subcontracts were made competitive: if a health center's management or output was poor, other health workers or managers were asked to apply to take over the contract. During 2001, four contracts were replaced. Monitoring activities, especially spot checks at the household level to verify that recorded visits had taken place, were considered vital to ensuring quality and transparency. Soeters and Griffiths (2003) argue that outsiders—in this case the NGO—are better able to introduce new management procedures than a ministry of health, which tends to be risk averse.

good worker productivity and program performance (chapter 71). Incentives have included better salaries; field and transportation allowances; and nonfinancial incentives such as streamlined management, specialized training, availability of facilities and material resources, and results-oriented management that provides effective administrative and technical support. Governments need to find ways of benefiting and learning from these experiences. For example, governments might allow periods of secondment to externally funded programs, after which staff members return to the government with enhanced skills. The success of such an approach will depend on remuneration not differing too greatly and on government bureaucracies providing the scope for staff members to use their new skills.

However, the history of civil service reform is not encouraging (Nunberg 1999). Reforms have sought to reduce the size of the civil service and to improve productivity using incentive schemes such as performance-based pay and promotion structures. Such reforms have been largely unsuccessful because of the political difficulties of reducing the size of the civil service. Structural and organizational changes are typically unpopular with labor unions, especially if they perceive such changes as threatening workers' well-being. Experience demonstrates the difficulties of aligning system and organizational objectives with individual workers' objectives (Martineau and Buchan 2000) and suggests that solutions need to be sought that do not involve radical reform of employment patterns unless the country setting is particularly propitious.

Where contracting with NGOs or other private providers is an option, doing so may permit changed employment patterns and improved performance without the widespread disruption that can result from attempting to change government workers' terms and conditions of service. In Cambodia, a project contracted to an NGO (HealthNet) obtained some improvements

in staff performance by establishing clear agreements with staff members concerning issues such as the working hours that would be expected and the informal charges that staff members were not to demand from patients. In return, staff members received substantial incentive payments (box 3.6).

Quality Assessment and Assurance

The quality of health services has a number of important implications. It affects the outcomes that a health system can achieve—both directly, through patient treatment, and indirectly, by encouraging or discouraging use of the services. It also affects staff morale, because working in an environment where employees know the treatment quality is poor is not motivating.

Substantial evidence, reviewed in chapter 70, indicates that the quality of care is often suboptimal and varies widely within countries. In part this suboptimal quality is attributable to resource constraints, but providing good-quality care is possible even in resource-poor settings.

Evidence on how providers' practices can be improved can be grouped into two categories: policies that indirectly affect providers' practices by changing structural conditions, including the practice environment, and policies that directly affect individual and group practices.

In the first category, legal mandates and administrative regulations can be used to bar unqualified workers from practicing; professional oversight and clinical guidelines can encourage good practices; contracts can specify and monitor quality standards, such as immunization coverage targets; and accreditation can stimulate quality improvements. Among policies that directly affect providers' behavior, training with peer review feedback has been shown to improve quality, as have total quality management approaches; remuneration can be

made dependent on performance subject to the caveats raised earlier. Measures that improve quality can increase use, strengthen the public sector's capabilities, and be highly cost-effective—even cost saving.

TARGETING RESOURCES

An important dimension of health system capacity that has not been considered explicitly so far, is the ability to ensure that resources are used in ways that meet health system objectives. As noted earlier, many health systems fail to perform as well as they might on effectiveness, efficiency, and equity criteria. This section addresses what policy instruments might be available to ensure that additional resources are used to the greatest effect, first at the systems level and then at the level of service delivery.

Systems-Level Mechanisms

At the systems level, tools available to decision makers include regulation and legislation, resource allocation formulas, and financial incentives.

Decision makers can use regulation and legislation to set minimum standards of care that insurance packages must cover, for instance. They can influence the availability of drugs by, for example, liberalizing prescribing and introducing accompanying measures to educate providers and users so as to increase the use of certain drugs that are safe to distribute on a large scale. One approach that has worked in Uganda is a social-marketing program making subsidized and clearly packaged drugs for sexually transmitted diseases available through the retail sector (Mills and others 2002).

In some settings, explicit rationing of the provision of care in the public and private sectors can be used to prioritize the most cost-effective interventions and limit the provision of less cost-effective ones. However, regulatory controls are unlikely to be effective in low-capacity settings and will simply encourage illicit activities. Moreover, explicit rationing requires a high degree of public acceptance and public involvement in the pri-

oritization process. A more acceptable strategy in most settings is to constrain the overall public sector resource envelope in terms of staff, buildings, equipment, and drugs and to leave rationing decisions within the envelope to clinical discretion (Segall 2003). However, clinicians may implicitly ration services in inequitable ways—for example, on the basis of age or social status—and supplementary measures are likely to be needed to ensure that health workers do not discriminate against poorer and marginalized members of society.

Resource allocation formulas have an important role to play in the public sector in directing resources to underserved geographic areas and population groups and to underfunded programs (Musgrove 2004). Given the typical shortages of health workers in more remote areas, such formulas should include remote area allowances or allow for the higher costs of delivering services in such areas. A formula in Zambia, for example, used distance from the railway line as a proxy for remoteness.

A similar approach to ensuring that resources go where they are most needed is the “marginal budgeting for bottlenecks” approach of the World Bank (see chapter 9). This country-based planning and budgeting approach assesses health sector impediments to faster progress toward the MDGs, identifies ways to remove them, and estimates both the costs and the likely effects of their removal on MDG outcomes.

In targeting resources to specific programs, expansion of one area of health provision should not occur at the expense of another priority area. For example, where staff capacity and facilities are limited, targeting additional funding to TB case detection and treatment may simply take staff time away from child health. This problem of the systemwide effects of disease-specific programs was discussed earlier. Addressing this problem requires empowering a central body, such as a ministry of health or a regional or district health authority, to take an overall view of priorities so that resource conflicts can be resolved.

Even though financial incentives need to be used cautiously, they can be powerful tools for influencing providers' behavior, as indicated earlier. They can also be an important influence on users' behavior. Experience in South Africa and Uganda (box 3.7)

Box 3.7

Removal of Fees at the Primary Care Level in Uganda

In February 2001, the government of Uganda abolished cost sharing in public facilities at the community level. This move was followed by a marked increase in the use of health services by all population groups. For villages near public health centers, the increase was greatest among the poorest groups. The frequency with which centers ran out

of drugs worsened during the first year of implementation but gradually improved during the second year. A study concluded that before the policy change user fees were probably a major deterrent to the use of public health services and that their removal was especially beneficial to the poor.

Source: Nabyonga and others 2005.

suggests that, in some settings, removing or reducing user fees at the primary care level may be an important element in encouraging greater take-up of primary care. Further studies of the effects of fee removal are needed.

Service-Level Mechanisms

At the service level, evidence suggests the value of providing a framework of resources and guidance within which managers and health workers can prioritize their efforts. The experience of the Tanzania Essential Health Interventions Program (chapter 54) highlights the health gains that a decentralized management structure can achieve when district managers are provided with the information, tools, and training to enable them to match services and additional resources with the local burden of disease. Berwick (2004) draws similar lessons from the experience of several highly successful projects in resource-poor settings: set clear aims and targets, use a team approach, build an infrastructure of human resources and data systems, engage with the policy environment, and develop simple approaches to rapid scaling up.

Patient education on major causes of ill health is also important to ensure that people know when to seek care (for example, in the case of childhood illness); understand their rights to various services and the official level of charges; and can make appropriate decisions about drug purchases. Patient charters may play a role in making explicit what patients have the right to expect from their health services and what level of service providers should achieve. Local policies on service provision need to relate to community preferences: if they do not, clients' confidence in the public health system will be undermined. One simple example is the pervasive view in some South African communities that public clinics water down medicines, thereby rendering them ineffective (Schneider and Palmer 2002). Indeed, generic medicines used by the public sector are often perceived as less effective than name brand drugs. Accurate public information is needed to counter that perception.

SOLUTIONS IN LOW-CAPACITY ENVIRONMENTS

Developing countries possess a range of capacities to improve the functioning of their health systems, but one group of countries faces the greatest constraints to doing so. Analyses undertaken for the Commission on Macroeconomics and Health used the framework presented in table 3.2 to understand the dimensions of the constraints problem in 79 low-income countries. Using proxies for the various types and levels of constraints—gross domestic product per capita, female literacy rate, number of nurses per population ratio, diphtheria-pertussis-tetanus immunization coverage, access to health services, control of corruption, and government effectiveness—countries can be classified as more or less constrained. Table 3.3

shows key indicators for the most constrained and other countries.

The most constrained group has significantly worse health indicators and much worse access to health resources. For example, countries in this group have almost twice the infant mortality rate and more than twice the maternal mortality rate of other countries but only one-sixth as many nurses. In absolute terms, the most constrained group represents a relatively small share of the total population of countries analyzed and consists, for the most part, of small countries (more than half have populations of less than 10 million) in Sub-Saharan Africa.

The key question in relation to improving health outcomes is what financing and delivery strategy might work best in these settings. Should it take the form of a limited number of programs, each addressing one or a few diseases? Or should efforts be devoted to building up the basic health service infrastructure on which targeted efforts to address specific health problems can then be built? Given the lack of evidence, providing guidance is difficult, and the chapters in this book present different views. Chapter 63 firmly dismisses the option of bypassing organized health services altogether in the poorest countries and promoting the delivery of child health interventions directly to households through, for example, community-based projects dispensing antimalarials or antibiotics. It argues that, though this approach may be a short-term solution, successes using it largely occur in small-scale pilots with strong managerial backup. Chapter 56 suggests that in the poorest societies basic preventive services should be introduced first—especially immunization, access to basic drugs, and management of the most severe threats to health such as emergency care for traffic injuries. At slightly higher levels of development, the introduction of community-based activities may be cost-effective if coverage by the formal health service is poor. Both chapters imply that the issue is not which approach to use but how to phase approaches and use a mix that depends on the intervention and the local context. Accomplishing this requires not only service delivery capacity but also management capacity to plan and evaluate the mix of approaches and make adjustments over time.

Molyneux (2004) suggests that disease control programs can be used to build capacity for the long term and that, with time, such programs can become more advisory and less managerial. For example, in Pakistan, primary health care was built on the experience of TB and leprosy clinics. In China, the vertical programs for disease control purchased time from health service operational staff members, thereby ensuring that funds flowed into the health service infrastructure (Dean Jamison, personal communication, 2004). In seven countries in southern Africa, a successful combined strategy for measles immunization started with a single, nationwide catch-up campaign in which mobile teams vaccinated all children in a particular age group (Levine 2004), an action that can sharply

Table 3.3 Health Indicators by Country Level of Constraint

Indicator	Unit	Most constrained countries ^a	Other countries
Total population (in 2000)	Millions	401	3,525
Population living on less than US\$1/day	Millions	123 (9 countries)	886 (29 countries)
Population living on less than US\$1/day	Percent ^b	30	25
Population living on less than US\$2/day	Millions	192 (9 countries)	2,128 (30 countries)
Population living on less than US\$2/day	Percent ^b	48	60
Physicians	Per 100,000 population	8.9	101.7
Nurses	Per 100,000 population	39.6	208.7
Hospital beds	Per 1,000 population	0.78	3.00
Maternal mortality	Per 100,000 births	1,134	565
Births with skilled attendant	Percent	30.6	59.8
Low birthweight infants	Percent	16.4	13.9
Infant mortality (in 1998)	Per 1,000 live births	105.3	61.2
Mortality among children under five	Per 1,000 live births	171.2	91.9
Measles immunization coverage	Percent	48.4	75.3
Diphtheria-pertussis-tetanus immunization coverage	Percent	40.3	76.3
TB Directly observed therapy short course (DOTS) detection	Percent	31.15	42.10
TB DOTS treatment success	Percent	68.4	77.1
Number of countries included	n.a.	20	59

Source: Ranson, Hanson, and Mills 2003.

n.a. = not applicable.

Note: Calculations were performed for a constraints index with up to three missing variables. Values for missing variables were imputed using a method described in the source.

a. These are the bottom quartile of countries, according to the constraints indicators, compiled into an index. The constraints index was calculated by normalizing each of the variables (subtracting the mean and dividing by the standard deviation) and then summing the normalized values. This calculation gives each variable equal weight in the index.

b. These averages are population weighted, whereas all other means in the table are unweighted.

reduce the spread of the virus. Routine services were used to continue measles immunization but with a follow-up campaign three to four years later to prevent the number of susceptible cases from rising to the level required for transmission. Over five years, measles virtually disappeared from southern Africa. However, maintaining this achievement requires that routine services be able to reach more than 80 percent coverage, a level many countries find hard to sustain. Moreover, in low-capacity environments, campaigns can divert attention and resources from routine primary health care services. Schreuder and Kostermans (2001) indicate that this problem occurred in southern Africa, particularly with respect to diverting scarce management capacity, implying that reducing deaths from one cause may risk worsening services for other diseases and conditions.

Victora and others (2004) suggest that the most appropriate mix of vertical and horizontal approaches depends on the human and financial resources available, the urgency with which results need to be achieved, the existing organization of health services, and the natural development of programs over time. Within a horizontal approach, the weaker the health

system setting is, the more important the provision of good technical and management backup will be to service delivery. The authors ascribe some of the difficulties that integrated management of infant and childhood illness (IMCI) faced in several countries to the absence of full-time IMCI coordinators, operational plans, and specific budget lines. They suggest that, when health systems are extremely weak, vertical programs may be required; however, as health systems strengthen, financing and delivery strategies can become less vertical and more horizontal and less selective and more integrated.

RESEARCH PRIORITIES

A notable paucity of evidence is apparent in relation to most key areas discussed in this chapter. This lack of evidence is illustrated by a recent review of the evidence on the equity of utilization and financing strategies (box 3.8). This and other reviews of the available evidence have led the *Lancet* to call for a new health systems research specialty (“Mexico 2004: Global Health Needs a New Research Agenda” 2004).

Box 3.8

Gaps in the Evidence on Equity of Health Financing and Utilization in Low-Income Settings

A recent review evaluated evidence on the effect of various financing strategies on use of health care. It found that most research was small scale and had findings of limited applicability. Well-designed, large-scale evaluations of the effect of alternative financing interventions were lacking, and a multitude of case studies described specific experiences but with little methodological rigor. The review recommended larger-scale, more systematic studies in a

range of settings, including nonrandomized designs when randomization is impossible or inappropriate and multi-center case studies that examine why arrangements do or do not work in different settings. The study proposed developing and applying quality criteria for quantitative and case study research along the lines of guidelines recently developed for randomized group trials.

Source: Palmer and others 2004.

Areas where evidence is especially limited that are identified in this chapter—where research is a high priority—include the following:

- Evidence on most health system reforms—for example, hospital autonomy reforms and decentralization—is inadequate to draw conclusions about the circumstances under which reforms are likely to improve the efficiency and equity of service delivery.
- Few studies relate a reform to health outcomes, and even evidence on intermediate outcome measures, such as costs and quality of service provision, is often lacking.
- Virtually no information is available about the costs of strengthening capacity or the effectiveness of different approaches to capacity strengthening, even though the lack of system capacity is widely noted.
- Evidence is largely lacking on the characteristics of delivery strategies capable of achieving and maintaining high coverage for specific interventions in various epidemiological, health system, and cultural contexts.
- Evidence is lacking on what types of governance and institutional arrangements will support the achievement of widespread health improvements, especially for the poorest members of society.

Addressing the deficiencies in the evidence base requires developing better study designs and analytical methods and building expertise in and understanding of health systems research. Capacity for research and analysis in health policy and health systems is currently limited. A recent survey (Alliance for Health Policy and Systems Research 2004) estimated that project funding for health systems research accounted for less than 0.02 percent of the total annual health expenditure of developing countries. More than half of research projects had budgets of less than US\$25,000. Of institutions identified as engaged in health systems research, a third had no staff qualified at the

doctoral level, and researchers with doctoral degrees made up only a quarter of the research workforce. An analysis of studies cited in Medline showed that only 5 percent of the health systems research literature concerned developing countries.

Given the importance of influencing policy and practice, the approach to research needs to encompass solving operational problems in real-life settings. Ethical issues arise in using limited supplies of talent to study problems unrelated to the local context when the human resources and systems required to improve operational programs are lacking. Moreover, the quality and effect of investigations are much improved when they are based on dialogue with the primary users and set in real-life contexts. The concept of the cycle from research to policy and practice needs to be emphasized more strongly. It encompasses not only generating knowledge but also managing the research agenda, including setting priorities, and promoting the use of evidence through means such as advocacy channels and specific mechanisms designed to link producers and users of research (Alliance for Health Policy and Systems Research 2004). Given the importance of context in translating research evidence into service and system practice, operational research and program evaluation capacity must be built among country-based scientists and practitioners.

CONCLUSIONS

This chapter has sought to address the question of how health systems can be strengthened to deliver cost-effective and equitable interventions and services. Recent cross-country analysis on the association between health expenditure by government and health outcomes has suggested that the effectiveness of increased health expenditure depends heavily on governments adopting the right policies (World Bank 2004). What are the right policies, and what are effective implementation processes? The review in this chapter suggests that in many areas not enough is known to recommend particular approaches and

also that recommendations need to be adapted to local contexts. Nonetheless, six key points can be identified in relation to improving health systems:

- Health systems face numerous constraints in low-income countries, but they are the basis for the long-term future of sustained health improvements. The health of the system must, therefore, be carefully considered whenever major new programs are put in place.
- If capacity constraints are such that a focused disease- or program-specific effort is desirable to address an urgent problem, the effort should be designed to contribute to the long-term system strengthening, rather than detracting from it. Countries must avoid having multiple vertical programs competing for limited human resources and managerial capacity. Over time, as horizontally organized services strengthen, the need for more vertical financing and delivery strategies will lessen.
- Reforms affecting organizational structures and human resource management are likely to play an important role in improved performance. However, emerging evidence suggests in most settings that changes are most likely to be successfully implemented if they are incremental and gradual rather than “big bang” reforms. Stability of policies and consistent implementation are also required.
- Linking financial incentives to performance, whether through contracts with health care providers or through performance-related pay, may bring rewards if careful monitoring is possible; however, evidence on the sustainability of such arrangements is lacking, and effective monitoring may require long-term external involvement. Evidence is needed on alternative approaches to improving performance.
- Organizational reforms must keep the goal of improved health outcomes, equity, and responsiveness in sight. Doing so requires paying special attention to users’ demands, to primary care and first-level hospitals, to quality of care, and to technical backup for disease control programs.
- Capacity-strengthening efforts in most settings must encompass action at all levels, from increasing leadership of the ministry of health at the national level through strengthening support for peripheral levels.

The current body of knowledge represents a largely ad hoc and disjointed collection of facts, figures, and points of view. Making confident recommendations relevant to strengthening health system capacity is thus difficult. Although international financing is vital, countries need flexibility to develop solutions based on local assessments and experience and to progress at a pace commensurate with their situations. Sustained investment in analytical and operational research capacity is needed as part of program and systems support, to serve national priority setting and policy formulation.

ACKNOWLEDGMENTS

Discussions at a workshop sponsored by the Disease Control Priorities Project in South Africa during June 30–July 3, 2004, contributed considerably to the development of ideas for this chapter.

NOTE

1. The health system is understood to encompass all activities whose prime intent is to improve health.

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