

Chapter 64

General Primary Care



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Primary health care has always been a feature of health care systems and—from a modern perspective—involves four inter-related aspects: a set of activities, a level of care, a strategy for organizing health care, and a philosophy that permeates health care provision. At full stretch, then, the “primary health care approach” can affect the configuration and focus of the entire health system and extend to the development of communities (Vuori 1985).

It is not always easy to see how information on the cost-effectiveness of individual interventions—the focus of part 2 of this volume—contributes to the achievement of the wider features of primary health care. Indeed, Starfield (1998) points out that the importance of particular services or interventions is overrated, in part because of limited appreciation of the “essential and unique functions” of primary care. These functions are mutually reinforcing and include first-contact care; continuity in care (in Starfield’s words, “person-focused over time”); comprehensiveness of available services; and coordination with specialized services and other levels of care. The functions point to the centrality of how primary care is organized and delivered, something with which the cost-effectiveness approach has hitherto not been greatly concerned. This chapter attempts to identify some of the common ground between the primary health care approach and the cost-effectiveness approach. We propose that resource constraints simultaneously require (a) the targeting of services toward burdens of disease that are amenable to highly cost-effective interventions and (b) the general strengthening of the health system, particularly at the primary care and district levels.

THE SCOPE OF GENERAL PRIMARY CARE PRACTICE

General primary care can be defined as the immediate—and often continuing—medical and health management of a child, adult, or family when the patient first presents to the formal health system. In low- and middle-income countries, such care is often provided from publicly funded health posts and health centers by nurses or other midlevel health workers, with medical doctors expected to play a support, training, and referral role.

Comprehensive versus Selective Care

The 1978 Alma Ata declaration on primary health care (WHO and UNICEF 1978) was informed by a number of well-described, small-scale health and development efforts in a range of settings (Newell 1975; Tollman 1991). It focused international health care efforts on low-cost, potentially high-impact interventions, both medical and social, at both the primary and community levels. In particular, the declaration emphasized the importance of health promotion and community development through, for example, the supply of water and sanitation and the involvement of communities in decision making.

Before long, the extent of resources and capacities needed to implement such comprehensive activities led to the emergence of the concept of “selective primary health care” (Walsh and Warren 1979). This concept advocated a focus on a limited number of priority conditions, such as children’s health and

particular tropical diseases. Selective interventions, often centrally planned, and managed and operated by a dedicated staff, were intended as entry points into the health care system. Such an approach, when fully operationalized as a “vertical program,” proved especially useful in implementing control and eradication campaigns and in dealing with epidemics following natural disasters (Unger, de Paepe, and Green 2003; World Bank 1994).

The selective approach attracted strong criticism for not acknowledging that primary care practice needs to take account of the range of conditions that present, many of which—by definition—were excluded from the selective agenda (World Bank 1993). In addition, administrators responsible for vertical programs tended to have little contact with local health officers and seldom coordinated well with other vertical efforts, leading to duplication of training, supervision, and logistics management (Briggs, Capdegelle, and Garner 2003). Other inefficiencies resulted from the need for specialized personnel, which led to growing numbers of dedicated staff members as well as excessive demand on service users’ time if they needed multiple services. Verticalization can also lead to competition between programs, favoring of some conditions at the expense of others, weaknesses in continuity of care, disruption of routine health services, and erosion of country-level delivery capacity (Coker, Atun, and McKee 2004).

Concerns about the appropriateness of individual vertical programs were matched at that time by concerns about the continuing misallocation of resources toward expensive, cost-ineffective care, culminating in the publication of *Investing in Health: World Development Report 1993* (World Bank 1993). The report identified highly cost-effective interventions targeted at the major causes of the prevailing burden of disease in low- and middle-income settings. These interventions were grouped into a “minimum package of health services,” which, it was argued, governments and donors should prioritize for funding (World Bank 1993). The delivery vehicle for most of these services was the primary care system.

The definition and costing of intervention packages has evolved over time, and this evolution is reflected in the World Bank’s *Better Health in Africa* (1994), the World Health Organization’s *World Health Report 2000* (WHO 2000), and the report of Working Group 5 of the Commission on Macroeconomics and Health (Jha and Mills 2002). Although some services have been added and others have been described more specifically (partly informed by new research), the essential components of the package have remained remarkably constant. Another World Health Organization (WHO) publication (2002), *World Health Report 2002*, which focused solely on interventions against risk factors, corroborated several of the interventions in the package (Doherty and Govender 2004; see annex 64.A). Thus, a broad consensus appears to exist on the nucleus

of activities that is appropriate at the primary care level (see table 64.1). In many ways, this consensus existed before the publication of *Investing in Health* (World Bank 1993), but economic evaluation has subjected conventional wisdom to empirical validation and considerations of affordability; it has also scrutinized the components of particular interventions (frequency of prenatal health care visits, for example). This evaluation has served the purpose of providing a basis for consensus that is more convincing to key constituencies, such as national treasuries and donors. Consequently, several low- and middle-income countries have delineated minimum or essential packages for their own national contexts.

The notion of such packages is not without controversy, however. Whereas some criticisms relate to methodological issues—and hence to the advisability of generalizing the findings of local studies and using them to establish priority services on a global scale—others relate to the disease-oriented basis of essential packages (Doherty and Govender 2004). The authors of essential packages are not necessarily proponents of verticalization (in some instances, they have argued strongly for the cost-effectiveness that a horizontally well-integrated service can achieve). However, the reality of activity by international agencies, donors, and even governments means that, in many instances, the implementation of narrowly defined programs continues to be favored (with HAART—highly active antiretroviral therapy for the treatment of HIV/AIDS—having the potential to follow suit). Continuing verticalization also reflects the resource constraints faced by countries that are unable to mount a comprehensive set of services and suggests that services in developing countries are chronically underfunded (Jha and Mills 2002).

The disease-based construction of packages may have reinforced this tendency to verticalization, as may have incentives for program managers to monitor program activities in terms of their effect on specific diseases. This factor accounts partly for the suspicion that sometimes greets efforts at cost-effectiveness-based planning, and it signals the need to continually promote the effective integration of activities at the health facility level.

General Primary Care at a Key Interface

Although the primary care level constitutes the first point of patient or family contact, it is also a critical base for extending care to communities and vulnerable groups. These outreach services may focus on individual preventive measures (such as immunization, vitamin A, or oral rehydration therapy) or communitywide health-promoting efforts (such as education on child nutrition or adult diets and exercise; see chapter 56). Increasingly, home-based care for chronic conditions, such as HIV and AIDS and poststroke rehabilitation, can be expected to feature in outreach services. These services depend substantially

Table 64.1 Selected Sets of Interventions Used in the Cost Analysis of the Commission on Macroeconomics and Health, 2002

Disease area	Nature of interventions
Maternity-related interventions	Prenatal care Treatment of complications during pregnancy Skilled birth attendance Emergency obstetric care Postpartum care (including family planning)
Childhood disease–related interventions (immunization)	Vaccinations (Bacillus Calmette-Guérin, oral polio vaccine, diphtheria-pertussis-tetanus, measles, hepatitis B, <i>Haemophilus influenzae</i> type B)
Childhood disease–related interventions (treatment of childhood illnesses)	Treatment of various conditions (acute respiratory infections, diarrhea, causes of fever, malnutrition, anemia), now increasingly combined as integrated management of childhood illness
Malaria prevention	Insecticide-treated nets Residual indoor spraying
Malaria treatment	Treatment for malaria
Tuberculosis treatment	Directly observed short-course treatment for smear-positive patients Directly observed short-course treatment for smear-negative patients
HIV/AIDS prevention	Youth-focused interventions Interventions working with sex workers and clients Condom social marketing and distribution Workplace interventions Strengthening of blood transfusion systems Voluntary counseling and testing Prevention of mother-to-child transmission Mass media campaigns Treatment for sexually transmitted infections
HIV/AIDS care	Palliative care Clinical management of opportunistic illnesses Prevention of opportunistic illnesses Home-based care
HIV/AIDS treatment	Provision of highly active antiretroviral therapy

Source: Jha and Mills 2002.

Note: Smoking cessation interventions, although considered a priority, were not included in this cost analysis because it was assumed that they would be financed by tobacco taxes.

on community support and mechanisms for identifying, training, and supporting village or community health workers.

At the same time, primary care facilities mediate patient access to hospital care, particularly at the district level. General primary care, as a level of care, is thus located at a key interface

that links, on the one hand, ambulatory care with hospital and specialty services and, on the other, individual clinical care with community-wide or population-wide health, nutrition, and family planning programs. Acting as the fulcrum of a comprehensive care and support system, development of general primary care requires that local management teams plan services for their defined catchment communities (Jha and Mills 2002)—recognizing that catchment populations can be more difficult to define in urban (particularly high-density) settings. Delineating the community for which a local health system is responsible—and thereby making explicit the population under the care of providers—makes it feasible to undertake ongoing monitoring and evaluation of the performance of local primary care services (quality of care and extent of coverage, for example) and contributes to the assessment of health systems more broadly.

Given the pivotal position of general primary care, distinguishing sharply the cutoff between activities that occur at this level and those that occur elsewhere is difficult. The balance of services provided at the primary level rather than other health service levels is, in fact, a moving target, affected by an array of factors. For example, diagnostic and technological innovation can influence substantially the level at which interventions are delivered. In many middle-income countries, great potential exists to move elements of surgical, psychiatric, and medical care upstream to the primary care level, provided that the necessary competencies, equipment, and technical or managerial support exist. However, the converse also holds: no matter how appropriate in theory, if service delivery is ineffective, the downstream momentum to district and secondary hospital levels (and into the private sector) is almost unstoppable, with serious implications for the accessibility of care. In practice, therefore, factors such as geographic and financial inaccessibility, limited resources, poor capacity, and erratic drug supply and faulty equipment often mean that the services offered at the primary care level are disappointingly limited in their range, coverage, and effect.

“Fitting” of Interventions to the Health System

Recognition is growing that focusing simply on selecting cost-effective interventions as the basis for services development is inappropriate. Paying close attention to the qualities of the delivery system that are required to support the introduction of these interventions and, in time, provide support to their scale-up is essential. The Multi-Country Evaluation of IMCI Study Group (Bryce and others 2003, 159) highlights the “importance of separating biological or behavioural interventions from the delivery systems required to put them in place, and the need to tailor delivery strategies to the stage of health-system development.”

Thus, seeking and evaluating the goodness of fit between interventions with the potential to be highly cost-effective and the health system responsible for their effective delivery are critical. A major challenge in focusing on the primary care level is to establish the most effective combinations or clusters of interventions that can target multiple conditions and risk factors affecting key community groups (children, women, and older adults, for example) and that are appropriately adapted to local epidemiologic, economic, and sociocultural contexts. Clustering interventions appears to be a pragmatic approach that achieves a degree of comprehensiveness while at the same time acknowledging resource constraints. It also provides opportunities to intensify training, improve the quality of care provided, and assess community health impact (see chapter 63). If clusters, such as integrated management of infant and childhood illness (IMCI) or reproductive health services, can be fully integrated into health service planning, management, and operations, the health system will be provided with some focus while the shortcomings of vertical disease programs can be potentially avoided. Thus, clustering may allow for broader horizontal strengthening of local health system inputs. As stated earlier, persistent efforts to achieve such integration are essential, given that, as expressed by the Bellagio Study Group on Child Survival (2003, 324), “in today’s environment of disease-specific initiatives, cross-disease planning, implementation, and monitoring are hard to establish and maintain.”

However, clustering does not entirely address concerns that interventions based solely on cost-effectiveness assessments, which seldom examine indirect and nonhealth benefits (Doherty and Govender 2004), might deplete some of primary care’s unique features, including responsiveness to the expressed needs of local communities. Indeed, Gilson (2003,) writes that “future analysis and policy development must recognise that health systems are complex socio-political institutions and not merely delivery points for bio-medical interventions.” Community expectations of the services provided at a health center or health post tend to be holistic and may well depart from selected priority intervention categories. The exclusion of services from clusters, or the exclusion of whole clusters, can lead to inequity. Failure to manage this situation adequately can undermine clients’ confidence in the public health system and affect provider behavior negatively. WHO (2000, 59) notes that providers “usually react to this . . . by cross-subsidizing the excluded activities through the budget received to pay for the defined benefit package; or by charging extra for the additional services.”

These considerations need to be taken into account when identifying clusters of interventions to be provided in local contexts. Nonetheless, likely intervention clusters, with potentially high goodness of fit at the primary care level, will generally include IMCI; maternal and reproductive health services; clinic and community-based management of tuberculosis,

HIV and AIDS, and sexually transmitted infections; malaria management; management of hypertension, other cardiovascular risk factors, and—increasingly—stroke and cardiovascular disease; and mental illness and substance abuse. In all cases, a systematic approach must be taken to establish explicit criteria, guidelines, or regulations regarding the appropriate treatment level (primary, secondary, and so on) for key conditions and the interventions suitable for these conditions at different levels of severity, according to a country’s stage of health system development. Broadly categorizing countries according to their income status and the general features of their health system is too blunt an approach to allow the detailed mapping of interventions to the health system capability that is required, and it fails to recognize the wide disparities in health system organization and effectiveness that exist within national boundaries.

THE EFFECTIVENESS OF GENERAL PRIMARY CARE

Whereas it can be argued that highly cost-effective interventions deserve to be implemented, no matter the level for which they are designed, unique reasons exist for giving priority to those based at the primary level. As implied earlier, these reasons relate to the extent of the burden of disease that is potentially avertable through primary-level care (the health effect), the welfare benefits that accrue to households spared the experience of disease (the nonhealth effect), and the potential to provide widely accessible services (an equity effect based on degree of need).

Unfortunately, although many small-scale projects and assessments of single interventions have been able to measure such effects (see part 2 of this volume), the empirical evidence with regard to large-scale and routine primary care programs—whether in industrial or low- and middle-income settings—is scant (Doherty and Govender 2004; Starfield 1998). The key problem is to demonstrate the causal link between provision of general primary care services and positive health outcomes—and especially to disentangle the influences of socioeconomic conditions. This difficulty is compounded by other factors, ranging from the complexity of the study design required to convincingly evaluate routine programs (as opposed to field trials) to the difficulties faced by health ministries in ensuring that monies targeted at primary care are translated into the delivery of quality health services.

Thus, we are able to comment only in broad terms on the positive contributions of general primary care services, recognizing that, although these contributions are potentially enormous, the gains made by such services over the past two decades have been mixed. Importantly, Almeida and others (2001) caution against ascribing the failures of primary care to

inherent weaknesses in the concept. In commenting on analyses of the effectiveness of primary care, they point to “the cataclysmic effect on public health systems in less-developed countries of the global economic recession of the 1980s and the application of policies stressing privatisation and decreased public spending in that decade and the next; [this] resulted in rising poverty and under-funding of health services in many less-developed countries, to the point of near-collapse in the poorest countries” (Almeida and others 2001,).

Health Effects

Investing in Health reported that in countries with moderate to high mortality only a few conditions accounted for the majority of the burden of ill health (World Bank 1993). Thus, in 1990, 55 percent of the global burden of disease was concentrated in children under 15, and 75 percent of this burden was caused by 10 disease conditions or clusters (Bobadilla and others 1994). Except for congenital malformations, all these causes could be aligned with highly cost-effective interventions, many of which are classic components of general primary care (labeled the “clinical services” component of the package). Indeed, almost all of the activities included in the “public health” component of the package also involve some element of individual service delivery in the primary care setting. Together, it was estimated, these interventions could eliminate 21 to 28 percent of the burden of ill health in children.

With respect to adults, the World Bank (1993) found the burden of disease to be less concentrated: here the 10 main causes of disease and injury accounted for some 50 percent of the burden.¹ Most interventions against these problems were found to be quite cost-effective, but their overall estimated effect was moderate because they prevent or treat only part of the problems. Such interventions could thus eliminate 10 to 18 percent of the adult disease burden.

These figures give some sense of the potential effect of interventions at the primary level when they are targeted at common, high-burden conditions in the population. Subsequent work by the World Bank estimated that the primary care level could potentially deal with up to 90 percent of health care demands (World Bank 1994) and that only 10 percent of care needs require the services and skills typically associated with hospitals.

Shifting from estimates to empirical evidence, we find that some studies have been able to demonstrate large-scale success in the sphere of child health. For example, using data from a national survey in Niger, Magnani and others (1996) showed that children living in villages near health dispensaries were 32 percent less likely to die than children without access to modern primary care services (differential access resulted from the phased implementation of services, which produced a natural quasi-experiment). Drawing on earlier work, Ewbank

(1993,) concluded that the results of surveys in Zaire and Liberia “suggest that child survival programmes in Africa can reduce mortality substantially in populations living in different environments at very different initial levels of child mortality. . . . In both countries, it appears that the programme reduced mortality under age 5 by about 20% or more.” More generally, many examples of successful health programs clearly depend on the existence of a strong primary health care system (see chapter 8).

Given the paucity of evidence from developing countries, turning to the experience of high-income countries is useful, although the configuration of primary care services in such settings may be quite different. Following a detailed comparative study of 11 industrial nations (which involved the methodologically complex—and at times controversial—assigning of primary care and health system scores by country and then associating these scores with a range of health status indicators and total health care costs per capita), Starfield (1994,) concluded that “countries with a stronger orientation to primary care indeed are more likely to have better health levels and lower costs.” Shi (1994,) found that, in the United States, availability of primary care was “by far the most significant variable related to better health status, correlating to lower overall mortality, lower death rates due to diseases of the heart and cancer, longer life expectancy, lower neonatal death rate, and less frequent low birth weight.” Although working largely at the level of health output rather than outcome, Blumenthal, Mort, and Edwards (1995), in reviewing a number of studies in the United States, found considerable evidence of the positive effect of primary care services (see box 64.1). They argue that the literature does not adequately address the issue of whether primary care reduces the cost of providing care for underserved populations, but they conclude that “a commitment to primary care should be made for its potential to improve the satisfaction and health status of the American public, not for its potential to save money” (Blumenthal, Mort, and Edwards 1995,).

Nonhealth Effects

Although most of the recent literature on primary care packages places value on primary care services because of their ability to reduce the burden of disease considerably and at low cost, such services potentially bring other benefits to society. Among the most striking may be the welfare benefits that accrue to households as a result of the prevention of illness. Severe disease can limit the ability of patients and caregivers to work, leading to the consumption of household assets in the purchasing of care. Russell (2003) found that such costs amounted to just over 10 percent of household income in three developing countries, a proportion that can have a catastrophic impact on the sustainability of poor households. Through

Box 64.1

Evidence of the Effectiveness of Primary Care Services

The effectiveness of primary care services is illustrated as follows:

1. Community-based interventions improve access to services, reduce the use of emergency and outpatient departments at hospitals, increase the use of noninstitutional ambulatory care, and reduce the use of hospital care (especially with respect to preventable hospitalizations).
2. Primary care is associated with improved control of routine illnesses that have serious consequences if untreated.
3. The availability of primary care services is associated with improvement in patients' self-perceived health status.
4. The longitudinal care afforded by primary care services is independently associated with improved patient satisfaction, reduced use of ancillary and laboratory tests, improved patient compliance, shorter length of stay, and improved recognition of patients' behavioral problems.

Source: Blumenthal, Mort, and Edwards (1995).

prevention and early treatment, geographically accessible and financially affordable primary care services can reduce the negative economic consequences of ill health for households, reduce absenteeism, and enhance children's performance at school.

Serving of Equity Goals

Primary care services have the advantage over hospital care of tending to be more physically, financially, and culturally accessible to local communities. Because of their staffing and organization, they are less costly and more easily able to provide comprehensive, integrated, personalized, and continuous care (World Bank 1993). Because that part of the burden of disease that is addressed by primary care services disproportionately affects the poor, primary care services are theoretically well placed to improve equity in health and health care. Again, few data exist to demonstrate the equity effects of primary care delivered on a large scale in middle- and low-income countries. This gap is compounded by the fact that cost-effectiveness analyses seldom take into account the costs incurred by patients in seeking care (Doherty and Govender 2004).

However, in studies by Shi and Starfield (2000, 2001) examining income inequality and primary care in the United States, a significant association between higher primary physician supply and good health status was established, even in a context of high income inequality: "The finding of a significant association between primary care and self-rated health contributes to the mounting evidence that specific aspects of health services

have an independent [of income levels] effect in improving population health—in particular, the beneficial effects of primary care" (Shi and Starfield 2000,). The authors suggest that, at least within the particular settings studied, strengthening the primary care aspects of health services could mitigate some of the adverse impacts that income inequality has on individuals' health status.

Primary-level services are also potentially responsive to patients' nonhealth needs. These include a need for the range and quality of health services to meet community expectations and a need for services to treat patients in a helpful and dignified manner. In addition, primary-level facilities can act as community resources (providing communal meeting places, for example), and primary care services can contribute support to neighborhood sports and community development activities. All in all, well-functioning primary-level services represent the face of the health system and have the potential to inspire trust in the system as a whole.

Another source of suspicion regarding the cost-effectiveness approach is the fear that efficiency concerns will override these positive features of primary care. Paalman and others (1998,) note that "the fact that the most efficient interventions . . . tend to specifically benefit the poor is more a result of coincidence than of principle." Indeed, the cost-effectiveness approach does not intrinsically protect equity and could, for example, count against the extension of services to populations living in remote areas. Governments will, at times, need to make explicit choices between serving equity goals and responding to efficiency concerns when determining service priorities. This tradeoff is easier to manage in wealthier countries, where resources are less constrained.

Table 64.2 Cost-Effectiveness of the Health Interventions Included in the *Investing in Health* Minimum Package of Health Services for Low- and Middle-Income Countries (2002 US\$, 2001 prices)

Interventions	Cost per DALY	
	Low-income countries	Middle-income countries
<i>Public health</i>		
Expanded program of immunization plus (that is, including vaccine against hepatitis B and vitamin A supplementation)	15–22	32–38
School health program	25–32	48–54
Tobacco and alcohol control program	44–70	57–70
AIDS prevention program	4–6 ^a	16–23 ^a
Other public health interventions (includes information, communication, and education on selected risk factors and health behaviors, plus vector control and disease surveillance)	—	—
Total	18	—
<i>Clinical services</i>		
Chemotherapy against tuberculosis	4–6	6–9
Integrated management of the sick child	38–63	63–127
Family planning	25–38	127–190
Sexually transmitted disease treatment	1–4	13–19
Prenatal and delivery care	38–63	76–139
Limited care (includes treatment of infection and minor trauma; for more complicated condition, includes diagnosis, advice, and pain relief, and treatment as resources permit)	253–380	507–760
Total	—	168

Source: Bobadilla and others 1994; World Bank 1993.

Note: — = not available, presumably because the authors were not able to aggregate data to country level.

a. Understates cost-effectiveness because the analysis examined the probability of transmission to others in the first year only.

THE COST-EFFECTIVENESS OF PRIMARY CARE INTERVENTIONS

Part 2 of this book details our best understanding of the cost-effectiveness of many of the individual interventions that have been clustered into “essential packages.” According to *Investing in Health*, most of these interventions are highly cost-effective, costing less than US\$100 per disability-adjusted life year (DALY) averted (see table 64.2; World Bank 1993).

Subsequent packages have expanded the *Investing in Health* list somewhat, yet the primary-level interventions put forward in 1993 remain among the most cost-effective available, especially when combined with population-based interventions (Commission on Health Research for Development 1990; Jha and Mills 2002; WHO 2000). It is important to appreciate that, because of the added costs of extending service delivery to people living in more rural and peripheral areas, achieving universal coverage would probably raise marginal costs considerably above the average figures normally quoted. Bobadilla and others (1994,) note that, in these instances, “the relative importance of cost-effectiveness versus equity will then determine whether to modify the package by leaving out some interventions, providing mobile services rather than fixed facilities, concentrating on public health rather than clinical interventions for the high-cost population, or sacrificing some efficiency in order to preserve equity.” The need to redress gender imbalances or respond to cultural preferences and other factors, as well as the choice of interventions, also might affect costs.

SCALING UP

Adequate delivery of services (and health care more broadly) at the primary care level is, we believe, fundamental to effective functioning of health systems. However, for the most part, primary care systems in low- and middle-income countries have yet to receive the sustained attention and resources that their importance warrants. Early efforts at primary care expansion in the late 1970s and early 1980s were overtaken in many parts of the developing world by economic crisis, sharp reductions in public spending, political instability, and emerging disease. Although essential packages based on cost-effectiveness criteria have been criticized for their largely disease-oriented and vertical approach, in most poor countries even these limited versions of general primary care remain incompletely applied and largely unaffordable in relation to current per capita health care expenditure. At the same time, renewed awareness of the centrality of the primary level in responding to the consequences of the HIV/AIDS epidemic or to rapidly rising cardiovascular risk means that increasing demands will be placed on primary care services. This section examines critical elements of any strategy to scale up primary care efforts; a prerequisite, however, is an adequate understanding on the part of policy makers and planners of the position and role of primary care in the national health system (Travis and others 2004).

Committing More Financial Resources

In the mid 1980s, Drummond and Mills (1987) found the best estimate of the cost of effective primary health care (including

Table 64.3 Comparison of Per Capita Total Annual Health Expenditure Required to Provide Minimum Packages (2002 U.S.\$, 2001 prices)

Report	Low-income countries	Middle-income countries
<i>Investing in Health</i> (World Bank 1993)	15	27
<i>Better Health in Africa</i> (World Bank 1994)	16–20	— ^a
Commission on Macroeconomics and Health (Jha and Mills 2002)	Least developed: 40	Lower-middle income: 39
	Other low income: 36	Upper-middle income: 331 ^b

Source: Doherty and Govender 2004.

a. Estimate not provided.

b. Higher figure because of range of services provided (beyond minimum package) and higher input costs; applies to a small subgroup of countries.

the recurrent and capital costs of basic and village-level health services but not of water and sanitation) to be 2 percent of the annual per capita gross national product (GNP). This amount, they noted, is considerable, given that many governments in developing countries do not spend even 2 percent of annual per capita GNP on their entire health sector.

More recently, the Commission on Macroeconomics and Health (CMH) estimated that an additional US\$40 billion to US\$52 billion annual expenditure would be required by 2015 to scale up 49 priority health interventions—not all at the primary care level—to reach high levels of coverage in 83 deserving countries (that is, countries with a GNP per capita below US\$1,200, plus all countries of Sub-Saharan Africa) (Jha and Mills 2002). Apart from the recurrent and capital costs of the interventions themselves, this estimate included management costs generated at levels above “close-to-client” services, expenditure to improve absorptive capacity, expenditure on improvements in the quality of care, and 100 percent increases in staff salaries to address the problems of staff recruitment and retention. The inclusion of these costs accounts largely for the greatly increased per capita estimates of the CMH package relative to earlier estimates by the World Bank (see table 64.3), and probably provides a better estimate of what is needed, given the enormous challenges facing primary care service delivery.

The CMH has placed great emphasis on donor funding of services to adequate levels (see chapter 12 for a more extensive discussion of sources of financing). Other avenues of funding include reprioritizing government budgets or recovering costs through health insurance schemes and user fees, although these all remain difficult options within low-income settings. In particular the experience of user fee schemes, which proliferated in the 1990s, suggests that such schemes have negative impacts on equity, especially at the primary care level, and

should be applied with great caution in poor communities (Gilson 1998). Yet the fact remains that an injection of additional resources is clearly one prerequisite for the successful scaling up of general primary care in the 21st century, backed up by political commitment to the centrality of general primary care (and primary health care more broadly) as a fundamental strategy for tackling the highest-burden diseases and their causes.

Developing Human Resources

Although increased financial resources are imperative, Kurowski and others (2003) emphasize that “human resource availability is likely to determine the capacity to absorb additional financial resources and thus the pace of scaling up.” These authors warn that human resource availability is likely to be grossly insufficient to meet the scaling-up needs envisioned by the CMH.

The skills and competencies necessary to deliver and support effective primary care are in some respects similar to those required at other levels of the health system (see chapter 71), but certain competencies warrant special emphasis at the primary care level (see box 64.2). Above all, if local services are to meet community health needs, leaders at the primary care level will have to be freed from the constraints of stifling, rule-bound bureaucracies and encouraged to develop innovative and at times unorthodox responses to the demanding challenges they face. As expressed in the *World Health Report 2000* (WHO 2000, 64), “a key challenge in health service delivery is to balance the need for broad policy oversight with sufficient flexibility so that managers and providers can innovate and adapt policies to local needs and contexts in a dynamic way.”

The creation of dynamic health teams at the primary level is one of the greatest requirements for scaling up effective primary care. The role of community health workers in such teams remains unresolved and bears further investigation. At the same time, one of the most challenging constraints is to overcome the loss of motivation and sense of resignation of the great body of primary care workers who work in understaffed settings; who lack consistent, quality support; and who have grown accustomed to a norm of inadequate service delivery (Narasimhan and others 2004). As Hongoro and Normand assert in chapter 71, the extent to which countries can improve access to good quality primary care will depend in large part on a “better matches of skills to needs . . . and clearer understanding of how improved structures and incentives will work.”

Harnessing Private Sector Resources

Private sector health care provision is widespread and growing. It extends from local supply of drugs and equipment to fee-

Box 64.2

Important Skills and Competencies at the Primary Care Level

The primary care level warrants the following important skills and competencies:

- Ongoing monitoring of use of services with particular reference to patient access and community coverage, and program adjustment as indicated
- Continuous linking of general primary care services with community outreach efforts in order to enhance program effects in the defined catchment community
- Appropriate clinical skills for midlevel workers, especially in the absence of doctors, and practiced judgment regarding timely referral to a hospital
- Responsiveness to community needs—whether or not directly expressed—and heightened sensitivity to cultural norms and local systems of leadership and authority
- Facilitatory and responsive managerial styles by district team leadership that support and encourage frontline health workers.

Source: Authors.

for-service and insurance-based medical care to the many forms of traditional practice. Although general primary care in most African, Asian, and Latin American settings is a major feature of publicly financed services that are provided by the public sector, private providers clearly play a significant role in many low- and middle-income countries with respect to the provision of primary care services (Berman and Rose 1996; Palmer and others 2003). Governments have thus viewed private sector providers as contributing additional human and related resources that can be deployed in the service of at least a portion of the population (usually those with means, including employees with access to reasonable health insurance coverage). By alleviating the workloads faced by public providers, private sector providers have allowed the public services to focus more directly on poorer communities and patients without means. Out-of-pocket payments, health insurance, and donations (as opposed to government contracts) that fund private sector services thus result in additional financing for the health sector.

Patients often prefer the private sector for a number of reasons. These reasons include geographic accessibility, convenient opening hours, and more favorable staff attitudes, as well as perceived better quality in terms of shorter waiting times, greater privacy, higher standards of diagnosis, better (perceived) treatment, and counseling (Doherty and Govender 2004). Although private providers are generally thought of in relation to curative care, interest is growing in the role they could play in meeting public health objectives, especially with respect to the scaling up of primary care services (Palmer and others 2003).

It is important that the potential contribution of private sector resources be optimized through appropriate use of public-

private partnership mechanisms, public sector contracts, and government regulation. These mechanisms are generally easier for not-for-profit providers to contemplate, because they have often been instrumental in bringing primary care to poor communities. Some nongovernmental organizations (NGOs) are able to offer services that can fill notable gaps, home-based care to HIV and AIDS sufferers being but one example.

The potential of for-profit providers to contribute to the care of the poor is less obvious, especially given the incentives to overservice that are inherent in the fee-for-service reimbursement system. Mills and others (2002) find that consumers of private sector primary care are often unable to assess the technical quality of services, tending to place more weight on aspects of perceived quality, such as interpersonal skills of providers and the comfort of the environment in which treatment occurs, than on technical competence. Mills and others (2002,) argue that the effectiveness of private services is by and large rather low: “poor treatment practices have been reported for diseases such as tuberculosis and sexually transmitted infections, with implications not only for the individuals treated but also for disease transmission and the development of drug resistance.”

Palmer and others (2003, 292) have reviewed a “new model of private primary care provision” that has emerged in South Africa. This innovation involves commercial companies providing “standardized primary care services at relatively low cost” that are targeted at the low-income employed rather than the very poor (Palmer and others 2003,). Regarding the growing popularity of these private clinics, the authors find that they maintain excellent standards with respect to the quality of services. The clinics also run at a cost per visit that is comparable with public sector primary care clinics, demonstrating that the

acceptability of services to users and low-cost service delivery are not incompatible objectives.

Palmer and others (2003, 295) suggest that the increasing popularity of these (affordable) private clinics may provide an opportunity to encourage employed but low-income workers (who historically have used public sector health services at little or no charge) to make use of these clinic networks, which would enable the public sector to better tend to its “role as regulator and providing services to the poorest.” Potentially, this redirection of care could remove some of the burden on the public sector, and the task of regulation might be made easier by the strong hierarchical control exercised within these clinic chains. To some extent, this shift has been the experience in Sri Lanka, where government services have been designed with the explicit assumption that certain forms of care will be provided through the private sector (Rannan-Eliya 2001).

However, Palmer and others (2003) point out that the model has potential drawbacks. The comprehensiveness and continuity of services provided by these private clinics fall short of that available in the public sector. Furthermore, how the behavior of private clinics would change under a system of contractual arrangements with the public sector is not clear. Whereas contracting with the not-for-profit sector tends to accommodate government objectives fairly easily (Gilson and others 1997), the experience of contracting with the for-profit sector has had mixed results. These and other concerns imply that, although the for-profit sector is an important resource, arrangements for the delivery of care through this sector should be developed with caution. It also bears mention that, where public sector systems are weak, private sector services gain ground to the extent of unbalancing the public-private mix, with potentially serious consequences for costs and continuity in patient care and for coverage and equity more generally.

Setting Population Health and Clinical Care Priorities

Along with securing additional resources for primary care delivery, country capacity to generate the information necessary for setting and reviewing public health and clinical care priorities must be strengthened as a fundamental measure (Commission on Health Research for Development 1990). This principle lies at the heart of influential pilot work—at times referred to as *community-oriented primary care*—that emerged in the first half of the 20th century and now underpins the Tanzanian Essential Health Interventions Program (TEHIP), 1997–2004. TEHIP, through a research and development arm tasked with devising practical tools for decentralized health planning, has tested “how and to what extent evidence can guide planning of the health sector at district level . . . [in order to] improve technical and allocative efficiency with regard to local choices for resource allocation and services offered” (de Savigny and others 2002).² A dynamic process of using high-

quality local information, coupled with local problem solving, planning, and ownership, was central to appropriate decision making and consequent implementation.

Because local data on intervention costs and coverage are generally not available to district planners and managers, local cost-effectiveness analysis is difficult to incorporate into decentralized priority setting. With TEHIP, priority setting was driven more by the shares of the burden of disease that known cost-effective interventions could address. New analytic tools were devised that would help focus resource allocations on the major “intervention-addressable” disease burdens; targeted sets of cost-effective interventions were then applied—in place of embarking on a disease-by-disease or detailed cost-effectiveness approach (D. de Savigny, personal communication). Available understanding on cost-effectiveness was used to eliminate interventions known to be grossly cost-ineffective; it was not used to prioritize or rank interventions generally considered to be highly cost-effective.

TEHIP indicates that gross technical and allocative efficiencies are relatively easy to address when incremental funding is available. As described by de Savigny and others (2002), the net effect of decentralized funding, together with a mutually reinforcing series of planning, management, and capacity-development inputs, was a proportional and absolute increase in resources for more efficient delivery of prioritized, cost-effective interventions addressing the largest shares of the preventable local burden of disease; an increase in the use of government health services; and a decrease in mortality in infants, children under five, adolescents, and adults. This effect was achieved with relatively limited resources.

TEHIP and related experience make clear that delivery of effective primary care requires a greatly stepped-up capacity to provide an evidence base that is founded on current and evolving local disease and risk factor burdens, the performance of local health services, client use of public as well as private and traditional services, and (where appropriate) the costs of providing care. Effective use of such information can profoundly enhance the ability of the health system to deliver on its core service functions, target high-risk and vulnerable groups, assess coverage in service provision, and gauge health effects. Moreover, such information is vital to establishing the dimensions of the local disease burden that should be managed at the primary care level (Kahn and others 1999). As cogently stated by the Bellagio Study Group on Child Survival (2003, 324), “the capacity of countries to obtain and use information to support child-health programmes will be a determining factor in reducing child mortality.”

Developing a District Health System

Drawing from theory and experience in other branches of the public sector (Mills and others 1990)—and often as part of

wider public sector developments—the health sector introduced decentralization widely in low- and middle-income countries throughout the 1980s and 1990s (WHO 2000). Positive justification for this method of delivering health care and primary care in particular lay, first, in its intended benefits—for patients and communities—through the provision of context-appropriate services of steadily improving quality. This service delivery was rightly seen as also conferring substantial financial benefit on households. Second, decentralization was expected to lead to the strengthening of local responsibility and accountability, with growing authority of district management teams over local cost centers. Third, it was presumed that the more central management levels would invest in enhanced support systems, including management support, further training, financial management and administration, laboratory services, and drug supply systems (World Bank 1994).

In developing settings, few health systems did not decentralize in some form or another over this period, and most based services development on a so-called district (or subdistrict) health system model. Considerable effort was devoted to achieving a balance between primary care service delivery and referral to the first-level (or district) hospital. Incentives as well as penalties were invoked to encourage first use of primary care facilities.

Notwithstanding the theoretical appeal of health system decentralization, numerous difficulties in implementation were encountered, with the consequence that the performance of decentralized, primary care-oriented systems and national-level support to these systems have fallen way below expectations (Bellagio Study Group on Child Survival 2003). Although various factors can account for this outcome—and although these factors will differ according to local and regional circumstances—common difficulties include inadequate or insufficient primary care skills and competencies, which result in poor-quality care; breakdown in referral systems for emergencies and more complex cases (McCord and Chowdhury 2003; Snow and others 1994); delegation of responsibilities without the concomitant delegation of authority, especially in relation to budgeting; authoritarian or strictly hierarchical managerial styles that are not conducive to local health services support and development; and weak or absent measures to develop workable cost-management systems appropriate to different service levels.

These problems in achieving successful delivery need to be addressed if decentralization is to achieve its intended benefits. Again, greater appreciation of the role of decentralized systems in the broader health care architecture, the support needed to ensure their effectiveness, and the time required to build the necessary capability are all necessary. As Bryce and others (2003, 160) put it, “although research on interventions is plentiful, little is known about the characteristics of delivery strategies capable of achieving and maintaining high coverage for

specific interventions in various epidemiological, health system, and cultural contexts.” From this perspective, a too-narrow preoccupation with the cost-effectiveness of interventions cannot but have shortcomings: “whatever package of services is delivered, the resulting effectiveness and equity will almost certainly depend on how the services are delivered, [in other words] the strategy for organizing the care” (B. Starfield, personal communication,).

Primary care is delivered through a system of facilities, equipment, and personnel; tackling inefficiencies in the system may have major positive benefits for quality of care, program coverage, and cost-effectiveness. In many settings a real opportunity exists to increase the efficiency of general primary care teams by giving attention to working conditions, ensuring functional equipment, and maintaining a stable drug supply. Meaningful step-ups in care, workable referral and communication systems, gatekeeper functions where indicated, and effectively aligned management and support are all needed. Achieving such efficiencies should result in many more patients being assessed and managed properly. Significant cost savings may accrue to the health service (through patients being managed at the primary care level rather than the first or specialist referral level) and to patients, families, and households (through care being delivered more rapidly and nearer to home).

Demanding Services: Relationships with Local Communities

Among poor and vulnerable communities, the need for care is demonstrably high, and the effectiveness of primary care services is likely to substantially influence demand on the public sector. In relation to infectious as well as noncommunicable disease, outreach services have a major role to play in promoting positive health and health-seeking behaviors and in supporting community-level preventive and promotive efforts. More generally, renewed efforts to enhance community relationships with primary care workers and the health system as a whole—and to ensure that community voices actively and appropriately bear on local service development and decision making—can help bring clients and communities into constructive public health care partnerships.

A RESEARCH AND DEVELOPMENT AGENDA FOR GENERAL PRIMARY CARE

Throughout this chapter, we have emphasized the challenges and constraints to the effective delivery of general primary care services. In this section, we single out a few areas that warrant concerted research and development in the effort to establish a high-functioning primary care platform to support the implementation of cost-effective interventions.

Evolving Health Transitions

A critical consequence of fast-changing economic and social conditions is the rapid transition in health profiles in essentially all low- and middle-income settings. This shift has already led or is leading to the coexistence of persisting infectious disease; nutrition and reproductive health problems; emerging noncommunicable disease and related risk factors (such as hypertension, obesity, diabetes, stroke, and cardiovascular disease); and a growing burden from accidents and intentional injury. The challenge this transition poses to primary care systems is considerable. For the most part, these systems are oriented to maternal and child health and the management of acute illness. An accelerating health transition will require extending the reach and capacity of widely established primary acute care systems (oriented to episodic care) to accommodate the need for effective systems of chronic and long-term care (including continuing, medium- to longer-term, patient or client management and monitoring).

Introduction of Antiretroviral Therapy for HIV and AIDS

Many countries, particularly those in southern Africa and East Africa, are moving to the rapid introduction and scale-up of antiretroviral therapies for HIV and AIDS. Substantial and rapidly increasing financial investments are envisaged (indeed are under way); a necessary accompaniment to such scale-up should be improved drug supplies, strengthened laboratory services, clinical training of primary care staff, and reassertion of the importance of health service relationships with local communities. Such measures—which can succeed only with sustained public sector commitment—have the potential to invigorate and motivate all facets of primary care delivery but, equally, could undermine existing services. The challenge is how to realize the positive potential of antiretroviral therapies in meeting the needs of HIV and AIDS sufferers and their communities, while ensuring a major contribution to strengthening primary care provision more generally. In other words, the challenge is to strengthen a particular service (HIV and AIDS treatment and care) and primary care services simultaneously—through building more effective health teams, improving drug supplies, strengthening service monitoring and evaluation, enhancing supervision and support systems, extending service coverage, and so forth. Such systemwide strengthening can be expected to greatly improve the technical efficiency of key elements of the general primary care system.

Effective Support and Networking for Community and Home-Based Care

Along with the reorientation of primary care systems to support chronic and long-term care are needs for “home-based”

care—taking place in rural households, urban residences, or newer community-based facilities such as hospices. Although home-based care of people living with AIDS is most prominent, care and support for clients post-stroke or with other forms of physical or mental disability are as important. Primary care outreach services, working with community health initiatives, NGOs, and communities, are well placed to contribute expertise, training, and resources toward supporting such efforts, which are growing rapidly in importance.

Research to Strengthen General Primary Care in the Public Sector

An abiding need exists for experimental and quasi-experimental evaluation of innovation in general primary care services (whether delivered comprehensively or as clusters of interventions), providing greater insight into the enabling and constraining factors (which may be systemwide) and a more robust understanding of the effects, costs, and cost-effectiveness of modifications to these services in different settings. To maximize the likelihood of success in efforts to scale up effective interventions or system innovations, such initiatives should be carefully designed, implemented, and assessed in partnership with senior health ministry officers (Berwick 2004). Such evaluations are required to assess new forms of organizing primary care services (in particular, balancing persisting acute needs with the growing need for chronic and long-term care, or establishing the skills mix that is most effective in particular settings); similarly, they are necessary when assessing delivery of interventions—such as the cost-effectiveness of multi-disease intervention clusters in different epidemiological and social contexts, or the extent of uptake by vulnerable groups (such as children or the elderly) or marginal populations. Operational research efforts are needed in a range of spheres: to evaluate factors that facilitate or hinder effective performance by service providers or to develop easily managed monitoring systems to assist, for example, in assessments of intervention coverage.

CONCLUSIONS

Clearly, a great many of the most cost-effective interventions detailed in this volume depend on a high-functioning primary care system for their effective implementation. This system comprises the elements of the primary level of care (including facilities, equipment, drugs, personnel, and associated management support); their combination to form a competent delivery capability; and the services that are thereby delivered. Because cost-effectiveness estimates are based on the presumed effective delivery of primary care services, it can be argued that

implicit in the estimates have been overly optimistic assumptions regarding key constituents (staff, drugs, equipment, monitoring and evaluation, and so forth) of the primary care level and their functioning. Great efforts to render such systems as effective as possible, subject to the constraints of particular environments, are therefore justified.

More generally, decisions on the best and most appropriate sites for delivery of interventions are not always straightforward, will benefit from expert discussion, and will often be context specific. Moreover, many interventions can be delivered from multiple sites—although a hierarchy of preference will usually exist, influenced by issues such as cost-effectiveness, ease of service provision, need for monitoring, access, and coverage. Careful review of the extensive range of interventions presented in part 2 of this volume and their likely site of delivery reveals the following:

- The interfaces between (a) community and primary care levels and (b) primary care and district levels are critical sites that profoundly affect the effectiveness of service delivery.
- No substitute exists for a well-functioning district health system comprising community, primary care, and first-

referral (district) hospital levels. This organizational and service unit is fundamental to effective health care provision, and failure to recognize the interrelationship between component levels has had high health costs and resulted in great inefficiency.

The health and development cost of weak or inadequate primary care systems to high-risk or vulnerable groups—and to communities more generally—is demonstrably high. However, effective general primary care that responds to the rapid health transitions under way in all socioeconomic contexts offers the potential for major health and, hence, development gains that provide good value for money and enhance equity. Critical make-or-break points include upscaled financial investments paralleled by major and sustained investment in human resources (principally the strengthening of local staff capacity, the building up of key skill sets—including supportive management—and the encouragement of innovation in services development); far greater attention to improving delivery and service quality, monitoring service coverage, improving access by vulnerable groups and taking account of equity considerations in general; and establishment of a trusting and constructive partnership with local communities.

Annex 64.A Comparison of Proposed Basic Packages of Interventions

Intervention	Alma Ata Declaration (WHO and UNICEF 1978)	Investing in Health (World Bank 1993)	Better Health in Africa (World Bank 1994)	World Health Report 2000 (WHO 2000)	Commission on Macroeconomics and Health Working Group 5 (Jha and Mills 2002)	World Health Report 2002 (WHO 2002) ^a
Maternity-related interventions	+	+	+	+	+	
Prenatal care		+	+	+	+	
Treatment of complications during pregnancy		+	+	+	+	
Skilled birth attendants		+	+	+	+	
Emergency obstetric care		+	+	+	+	
Postpartum care		+	+	+	+	
Family planning		+	+	+	+	
Nutrition: pregnant and lactating women			+			
Tetanus toxoid				+		
Childhood disease–related interventions (prevention)	+	+	+		+	
Bacillus Calmette-Guérin	+	+	+	+	+	
Polio	+	+	+	+	+	
Diphtheria-pertussis-tetanus	+	+	+	+	+	
Measles	+	+	+	+	+	
Hepatitis B		+	+	+	+	
<i>Haemophilus influenzae</i> type B		+	+		+	
Vitamin A supplementation		+	+	+	+	+
Iodine supplementation			+	+	+	+
Zinc supplementation						+
Anthelmintic treatment				+		
School health program (incorporating micronutrient supplementation, school meals, anthelmintic treatment, health education)		+	+	+		
Childhood disease–related interventions (treatment)	+	+ (as part of IMCI)	+	+ (as part of IMCI)		
Acute respiratory infections				+	+	+
Diarrhea			+	+	+	+
Causes of fever			+	+	+	
Malnutrition			+ (including nutrition and supplementary feeding)	+	+	
Anemia				+	+	
Feeding and breastfeeding counseling				+		
Malaria prevention	^b	+		+	+	
Insecticide-treated nets				+	+	
Residual indoor spraying					+	
Malaria treatment	^b		+		+	

Annex 64.A Continued

Intervention	Alma Ata Declaration (WHO and UNICEF 1978)	Investing in Health (World Bank 1993)	Better Health in Africa (World Bank 1994)	World Health Report 2000 (WHO 2000)	Commission on Macroeconomics and Health Working Group 5 (Jha and Mills 2002)	World Health Report 2002 (WHO 2002)^a
Tuberculosis treatment	b	+	+	+	+	
Directly observed treatment short course (DOTS) for smear-positive patients				+	+	
DOTS for smear-negative patients					+	
HIV/AIDS prevention		+ (more limited than later packages?)		+	+	+
Youth-focused interventions					+	
Interventions working with sex workers and clients				+	+	
Condom social marketing and distribution					+	
Workplace interventions					+	
Strengthening of blood transfusions systems				+	+	
Voluntary counseling and testing				+	+	
Prevention of mother-to-child transmission					+	
Mass media campaigns				+	+	
Treatment for sexually transmitted infections		+	+	+	+	
HIV/AIDS care					+	
Palliative care		+ (see under limited care)			+	
Clinical management of opportunistic illnesses			+		+	
Prevention of opportunistic illnesses					+	
Home-based care					+	
HIV/AIDS HAART provision						+
Tobacco control program (taxes, legal action, information, nicotine replacement)		+		+	+	
Alcohol control program		+				
Other public health interventions (includes information, education, and communication on selected risk factors and health behaviors, plus vector control and disease surveillance)	+	+	+ (information, education, and communication)			
Limited care (includes treatment of infection and minor trauma; for more complicated conditions includes diagnosis, advice, and pain relief, and treatment as resources permit)	+	+	+			
Noncommunicable diseases and injuries (selected early screening and prevention)				+		+
Populationwide interventions to reduce the risks of cardiovascular disease (salt- and cholesterol-lowering strategies)						+
Water and sanitation	+		+			+ (disinfection at point of use)

Sources: Jha and Mills 2002; WHO 2000, 2002; WHO and UNICEF 1978; World Bank 1993, 1994.

HAART = highly active antiretroviral therapy for the treatment of HIV/AIDS; IMCI = integrated management of infant and childhood illness.

Note: A "+" that appears in a shaded cell but not in the white cells beneath this area means that no details of the exact interventions were provided in the report.

a. Addressed only interventions against risk factors.

b. These and other disease prevention and control initiatives fell under a general item termed *prevention and control of locally endemic diseases* (HIV/AIDS was not an issue at the time).

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NOTES

1. Bobadilla and others (1994) comment that separating interventions according to age group is artificial because benefits may accrue in later life, as in the case of hepatitis vaccine, and may improve well-being, such as cognitive abilities. Adult interventions, such as HIV prevention and prenatal care, also benefit children.

2. TEHIP has functioned in a “high mortality” setting. Relevant evidence is related to mortality levels and trends, including cause-specific mortality, as well as to district-level financial allocations and changes over time.

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