

Chapter 9

Millennium Development Goals for Health: What Will It Take to Accelerate Progress?



Adam Wagstaff, Mariam Claeson, Robert M. Hecht, Pablo Gottret,
and Qiu Fang

The scale of the diseases and conditions that the Millennium Development Goals (MDGs) address is staggering:

- Almost 11 million children died before their fifth birthday in 2000 (UNICEF 2001). Less than 1 percent of these 11 million deaths (79,000) occurred in high-income countries, compared with 42 percent in Sub-Saharan Africa, 35 percent in South Asia, and 13 percent in East Asia.
- In 1998, an estimated 843 million people were considered undernourished on the basis of their food intake (FAO 2000). Of the estimated 140 million children under the age of five who were underweight, almost half (65 million) were in South Asia.
- Of the 3.1 million people who died from HIV/AIDS in 2003, almost all (99 percent) were in the developing world—74 percent in Sub-Saharan Africa alone (UNAIDS 2004). Tuberculosis and malaria together killed an equal number; most of these deaths were among the poor.
- In 1995, 515,000 women died during pregnancy or childbirth: 1,000 in the industrial world, contrasted with 252,000 in Sub-Saharan Africa (UNICEF 2001).

This burden of death and suffering is heavily concentrated in the world's poorest countries (Wagstaff and Claeson 2004). Death and disease matter in their own right, but they also act as a brake on poverty reduction. Nobel laureate Amartya Sen (2002) has described health as one of “the most important conditions of human life and a critically significant constituent of human capabilities which we have reason to value.” Health also matters because it influences the living standards of both households and countries. Health expenses can easily become burdensome

for households. In Vietnam, they are estimated to have pushed 3 million people into poverty in 1993 (Wagstaff and van Doorslaer 2003).

Beyond the direct impact of ill health on households' living standards through out-of-pocket expenditures, it indirectly affects labor income through productivity and the number of hours that people can work. The effects of illness on income, which may take time to appear, are often long lasting. Malnourished children are less likely to attend school and less likely to learn when they do attend, reducing their productivity in later life. The devastating economic consequences of illness and death are evident at the macroeconomic level as well. The AIDS epidemic alone has been estimated to reduce rates of economic growth by 0.3 to 1.5 percentage points annually (Bell, Devarajan, and Gersbach 2003).

In the 1990s, the international community recognized the importance of health in development. In a period when overall official development assistance declined, development assistance to health rose in real terms. World Bank lending for health increased, with a doubling of the share of International Development Association disbursements going to health (OECD Development Assistance Committee 2000). The 1990s saw an increased global concern over the debt in the developing world, fueled in part by a perception that interest payments were constraining government health expenditures in developing countries. The enhanced Highly Indebted Poor Country Initiative, spearheaded by the International Monetary Fund and World Bank in response to the unsustainable debt burden of the poorest countries, was explicitly geared to channel freed resources into the health and other social sectors. The

Poverty Reduction Strategy Papers submitted by governments of developing countries seek debt relief or concessional (low-interest) International Development Association loans to set out their plans for fighting poverty on all fronts, including health.

The 1990s also saw the development of major new global health initiatives and partnerships, including the Joint United Nations Programme on HIV/AIDS (UNAIDS); the Global Alliance for Vaccines and Immunization; the Stop TB Partnership; the Roll Back Malaria Partnership; the Global Fund to Fight AIDS, Tuberculosis, and Malaria; and the Global Alliance for Improved Nutrition. A range of new not-for-profit organizations were set up to spur the accelerated discovery and uptake in developing countries of low-cost health technologies to address the diseases of the poor; these organizations included the International AIDS Vaccine Initiative, the Medicines for Malaria Venture, the Global Alliance for Tuberculosis, and the International Trachoma Initiative. In addition, the scale of philanthropic involvement in international health increased, with the launch of the Bill & Melinda Gates Foundation and the Packard Foundation and the continued attention to global health issues by such established entities as the Rockefeller Foundation. These initiatives brought not only new resources—funds, ideas, energy, and mechanisms—but also new challenges to harmonization in the attempt to coordinate and link global goals with local actions in the fight against disease, death, and malnutrition in the developing world.

As the 1990s closed, the international community decided that even more needed to be done. At the United Nations Millennium Summit in September 2001, heads of 147 states endorsed the MDGs, nearly half of which concern different aspects of health—directly or indirectly (box 9.1). Several other

goals are indirectly related to health—for example, the goals on education and gender. Gender equality is considered important to promoting good health among children. Other health outcomes than those included in the MDGs measure progress on health—for example, targets related to noncommunicable diseases. These targets are referred to as the *MDG plus* and are included in national priority setting, especially in many middle-income countries.

THE MILLENNIUM DEVELOPMENT GOALS FOR HEALTH: PROGRESS AND PROSPECTS

Of the MDGs for which trend data are available or estimated, the fastest progress has been on malnutrition, whereas overall progress on under-five mortality and maternal mortality has been slower.

A Mixed Score at Halftime

In-depth analysis of the health-related MDGs shows a mixed score at halftime (Wagstaff and Claeson 2004):

- The number of people living in on-track countries (countries that will reach the MDGs if they maintain the rate of progress they have already achieved during the period from 1990 to the present) matters. For the malnutrition target, 77 percent of the developing world's people live in an on-track country, but in Sub-Saharan Africa only 15 percent of the people live in an on-track country.
- Different indicators show different levels of improvement. For under-five mortality, the developing world was reduced by an average of only a 2.5 percent in the 1990s, well short of the target of 4.3 percent.

Box 9.1

The Health-Related Millennium Development Goals

Goal 1—eradicating extreme poverty and hunger. This goal includes as a target the halving between 1990 and 2015 of the proportion of people who suffer from hunger, with progress to be measured in terms of the prevalence of underweight children under five years of age. The target implies an average annual rate of reduction of 2.7 percent.

Goal 4—reducing child mortality. The target is to reduce by two-thirds between 1990 and 2015 the under-five mortality rate, equivalent to an annual rate of reduction of 4.3 percent.

Goal 5—improving maternal health. The target is to reduce by three-quarters between 1990 and 2015 the maternal

mortality ratio, equivalent to an annual rate of reduction of 5.4 percent.

Goal 6—combating HIV/AIDS, malaria, and other diseases. The target is to halt and begin to reverse the spread of these diseases by 2015.

Goal 7—ensuring environmental sustainability. This goal includes as a target the halving by 2015 of the proportion of people without sustainable access to safe drinking water.

Goal 8—developing a global partnership for development. This goal includes as a target the provision of access to affordable essential drugs in developing countries.

Source: United Nations Millennium Declaration, the United Nations Millennium Summit 2000.

- Regional differences are also pronounced, with Sub-Saharan Africa faring worse than other regions. In Africa, trends in reducing under-five mortality and underweight in children were barely above zero during the 1990s, and maternal mortality fell on average by just 1.6 percent a year compared with the annual target rate of 5.4 percent.
- Evidence on how the poor are faring within countries is mixed. For malnutrition, the poorest 20 percent of the population within countries appears, on average, to have been experiencing broadly similar rates of reduction to the population as a whole. However, for under-five mortality, the rate has been falling more slowly among the poor, while better-off families are seeing faster rates of progress.

Will the Second Half Go Better?

As a comparison of the child mortality experiences in the 1980s and 1990s demonstrates, past performance is not necessarily a good predictor of future performance. The fact that a country is on track on the basis of its performance in the 1990s does not guarantee that it will maintain the required annual rate of reduction of malnutrition or mortality during the second half of the MDG “window” from 2000 to 2015. Countries currently off track may possibly get on track in the second half if they can combine good policies with expanded funding for programs that address both the direct and the underlying determinants of the health-related goals.

Stimuli External to the Health Sector. The World Bank estimates that economic growth will fall somewhat in East Asia and the Pacific in 2000–15, turn from negative to positive in Europe and Central Asia as well as Sub-Saharan Africa, and increase somewhat in Latin America and the Caribbean, the Middle East and North Africa, and South Asia (Jones and others 2003). Primary education completion rates will probably grow faster in the new millennium as a result of the global education initiatives and partnerships on Education for All and the Fast-Track Initiative. However, higher rates of educational attainment among women of childbearing age will not be achieved until 2005 or so, and even then the first full round of effects on under-five mortality will not be felt until 2010.

More relevant is the fact that gender gaps in secondary education may well narrow faster in the new millennium than in the 1990s as a result of the gender MDG (Goal 3: Eliminate gender disparity in primary and secondary education by 2005 and in all levels of education no later than 2015). To achieve parity with boys by 2015 in the proportion of the population who are age 15 and have completed secondary education, girls will have to achieve a faster growth in completion rates in the new millennium than in the 1990s in most regions, especially in South Asia and in East Asia and the Pacific. If the water MDG (ensuring that households have access to safe drinking water) is to be reached, access rates will need to grow much

faster in 2000–15, especially in Sub-Saharan Africa (Wagstaff and Claeson 2004). Gender equality in school and access to clean water will have a positive effect on progress toward the health MDGs. Even with economic growth and faster progress on these nonhealth goals, however, many regions will still miss many of the health targets. The picture is bleakest for under-five mortality—and for Sub-Saharan Africa.

The Goals Matter for All Countries. These goals need to be taken seriously for three main reasons:

- Faster progress is important even if targets are missed. A key message of this chapter is that progress can be accelerated in all countries through a judicious mix of spending and policy and institutional reform.
- The goals facilitate benchmarking and monitoring of results. Because the goals focus on a limited set of outcomes, monitoring and evaluating progress toward the MDGs can show what is achievable and where faster progress can be made.
- Focusing attention on national progress, as measured by distributional analysis of the MDGs, forces countries to consider how the benefits of progress are distributed among the rich and poor within each country—the poor risk being left behind even in countries making progress overall. One limitation of the MDGs and targets is that they are national averages. However, distributional analysis of MDG trends (Wagstaff and Claeson 2004) reminds us that progress needs to be for everyone, not just the better off. Progress has been uneven, with the poorer countries lagging behind the rest, and for under-five mortality, the poor within countries are lagging behind the rest of the population.

SCALING UP: DEFINING INTERVENTIONS AND REMOVING CONSTRAINTS

A lack of interventions is not the primary obstacle to faster progress toward the goals, although new interventions that can be delivered by weak health systems could greatly improve progress—for example, malaria or HIV vaccines and effective vaginal microbicides to block the spread of HIV and other sexually transmitted infections. The main obstacle is the low levels of use—especially among the poor—of existing effective interventions. For example, if use of all the proven effective preventive and treatment interventions for childhood illness were to rise from current levels to reach all, the number of under-five deaths worldwide could fall by as much as 63 percent (World Bank 2003b).

Array of Interventions, Programs, and Service Modalities

The available interventions constitute a powerful arsenal for preventing and treating the main causes of malnutrition and death (table 9.1).¹ The major diseases and conditions that the MDGs aim to prevent and control are discussed in several

Table 9.1 Effective Interventions to Reduce Illness, Deaths, and Malnutrition

MDG	Preventive interventions	Treatment interventions
Child mortality	Breastfeeding; hand washing; safe disposal of stool; latrine use; safe preparation of weaning foods; use of insecticide-treated bednets; complementary feeding; immunization; micronutrient supplementation (zinc and vitamin A); prenatal care, including steroids and tetanus toxoid; antimalarial intermittent preventive treatment in pregnancy; newborn temperature management; nevirapine and replacement feeding; antibiotics for premature rupture of membranes; clean delivery	Case management with oral rehydration therapy for diarrhea; antibiotics for dysentery, pneumonia, and sepsis; antimalarials for malaria; newborn resuscitation; breastfeeding; complementary feeding during illness; micronutrient supplementation (zinc and vitamin A)
Maternal mortality	Family planning (lifetime risk); intermittent malaria prophylaxis; use of insecticide-treated bednets; micronutrient supplementation (iron, folic acid, calcium for those who are deficient)	Antibiotics for preterm rupture of membranes, skilled attendants (especially active management of third stage of labor), basic and emergency obstetric care
Nutrition	Exclusive breastfeeding for 6 months, appropriate complementary child feeding for next 6–24 months, iron and folic acid supplementation for children, improved hygiene and sanitation, improved dietary intake of pregnant and lactating women, micronutrient supplementation for prevention of anemia and vitamin A deficiency for mothers and children, anthelmintic treatment in school-age children	Appropriate feeding of sick child and oral rehydration therapy, control and timely treatment of infectious and parasitic diseases, treatment and monitoring of severely malnourished children, high-dose treatment of clinical signs of vitamin A deficiency
HIV/AIDS	Safe sex, including condom use; unused needles for drug users; treatment of sexually transmitted infections; safe, screened blood supplies; antiretrovirals in pregnancy to prevent maternal to child transmission and after occupational exposure	Treatment of opportunistic infections, co-trimoxazole prophylaxis, highly active antiretroviral therapy, palliative care
Tuberculosis	Directly observed treatment of infectious cases to prevent transmission and emergence of drug-resistant strains and treatment of contacts, Bacillus Calmette-Guérin immunization	Directly observed treatment to cure, including early identification of tuberculosis symptomatic cases
Malaria	Use of insecticide-treated bednets, indoor residual spraying (in epidemic-prone areas), intermittent presumptive treatment of pregnant women	Rapid detection and early treatment of uncomplicated cases, treatment of complicated cases (such as cerebral malaria and severe anemia)

Source: Authors.

chapters (for example, see chapters 15, 19, 21–24, 28–31, 44, and 45). The most cost-effective interventions and programs are also discussed in several chapters (see chapters 59–62 and 65). The chapters dealing with health systems and service delivery issues and other constraints related to the health MDGs are found in the latter part of the book (see chapters 66–68, and 73).

In the case of child mortality, for example, diarrheal diseases, pneumonia, and malaria account for 52 percent of deaths worldwide (World Bank 2003b). For each of these major causes of childhood mortality, at least one proven effective preventive intervention and at least one proven effective treatment intervention exist, capable of being delivered in a low-income setting. In most cases, several proven effective interventions exist. For diarrhea—the second-leading cause of child deaths—no fewer than five proven preventive interventions and three proven treatment interventions are available.

Effective Interventions Reaching Too Few People

The high rates of malnutrition and death in the developing world have several causes. First, people do not receive the effec-

tive interventions that could save their lives or make them well nourished. In middle- and high-income countries, 90 percent of children are fully immunized, more than 90 percent of deliveries are assisted by a medically trained provider (that is, a doctor, nurse, or trained midwife, excluding traditional birth attendants), and more than 90 percent of pregnant women have at least one prenatal visit (UNICEF 2001). In South Asia, fewer than 50 percent of pregnant women receive a prenatal checkup, and only 20 percent of deliveries are assisted by a trained provider.

The story is similar for other childhood interventions—and for interventions for other goals. Condom use to prevent transmission of HIV is low in much of Sub-Saharan Africa and South Asia, and inexpensive one-time treatment with antiretroviral medicine to prevent transmission from mother to child covers only a small fraction of at-risk pregnant women in most of the developing world. In Asia, where more than 7 million people are living with HIV/AIDS, no country has yet exceeded 5 percent antiretroviral therapy coverage among those who could benefit from it (World Bank 2003c).

Just as shortfalls in coverage vary across countries, so do they vary within countries, with the poor and other deprived groups consistently lagging. These groups are less likely to receive full basic immunization coverage, to have their deliveries attended by a trained provider, and to have at least one prenatal care visit to a medically trained provider. On the positive side, the poor are often making fastest progress in coverage, reflecting in part that the better off already have high coverage rates for many interventions.

Underuse of Effective Interventions Costs Lives

The low use of effective interventions—in the developing world in general and among the poor in particular—translates into rates of mortality, morbidity, and malnutrition that are far higher than necessary. If use of all the proven effective childhood preventive and treatment interventions, for example, were to rise from their current levels to 99 percent—95 percent for breastfeeding—the number of under-five deaths worldwide could fall by as much as 63 percent (Jones and others 2003). Deaths from malaria and measles could be all but eliminated, and deaths from diarrhea, pneumonia, and HIV/AIDS could be reduced dramatically. If coverage rates of the key maternal mortality interventions were increased from current levels to 99 percent, an estimated 391,000 maternal deaths worldwide (74 percent of current maternal deaths) might be averted (Ramana 2003). One intervention stands out as especially important: access to essential obstetric care, which accounts for more than half the maternal deaths averted.

WHAT DO COUNTRIES NEED TO DO?

If the lack of interventions is not holding countries back from achieving the goals, what is? What do countries need to do to make progress toward the MDGs?

In countries with good governance, additional government health spending does reduce child mortality (Rajkumar and Swaroop 2002). Development assistance has a stronger effect in countries with strong policies and institutions than in countries with only average-quality policies and institutions—and an insignificant effect in countries where policies and institutions are weak. This assertion is also consistent with the findings of a study undertaken by the World Bank for the MDG report, *The Millennium Development Goals for Health: Rising to the Challenges* (Wagstaff and Claeson 2004). The study includes other outcomes with child mortality and uses the World Bank's Country Policy and Institutional Assessment index to measure the quality of policies and institutions.

In principle, well-governed countries with good policies and institutions could achieve the goals simply by scaling up their expenditures on existing programs in proportion to current

allocations. In practice, however, the amount of extra spending required would be difficult to attain on present trends and would even be prohibitively expensive. In the case of East Asia and the Pacific, for example, if economic growth proceeds as expected and the other relevant Millennium Development Targets are attained, the region would achieve the required rates of reduction of underweight and maternal mortality—assuming that economic growth is accompanied by the development of appropriate human resources for health—even if government health spending continues to grow at its current rate. However, the region would miss the under-five mortality target. To reach that target, a minimum of 5 percentage points would need to be added to the annual rate of growth of the government health share of gross domestic product (GDP). That would take the projected share of GDP spent on government health programs to 3.7 percent in 2015—more than twice what it would be if the 1990s pattern of growth continued (Wagstaff and Claeson 2004).

In Sub-Saharan Africa, the situation is even starker. Even if faster economic growth materializes and the other targets are achieved, the share of government health spending in GDP would need to grow nearly sixfold over the coming decade, taking the share to 12.2 percent of GDP in 2015. This percentage compares with a 2000 figure of 1.8 percent and a 2015 forecast of 2.2 percent based on the 1990s annual growth in government spending for health. In conclusion, African countries will not be able to reach the MDGs simply by multiplying their health spending along the lines of historical expenditure patterns, because the multiples required are beyond any realistic expectation of what these governments will be able to do during the next 10 years.

What Are the Implications?

Poorly governed countries cannot expect to make much progress toward the MDGs simply by scaling up their expenditures on existing programs in proportion to current allocations. Although well-governed countries could, in principle, simply scale up existing spending to reach the targets, this option is unlikely to be affordable for them or their donors.

This situation has two implications:

- First, targeting additional government spending to activities that will have the largest effect on the MDGs is important for both sets of countries.
- Second, building good policies and institutions is important for all countries: doing so increases the productivity not just of additional spending but also of existing spending commitments. What do better policies and institutions entail in the health sector? Health systems are very broad, and weak policies and institutions can arise at several points along the pathway, from government health spending to health

outcomes (Claeson and others 2001). Countries can do a number of things, with help from donors, to build stronger policies and institutions.

Improving Expenditure Allocations and Targeting

In most countries, government spending gets stuck in the cities and disproportionately accrues—in a financial sense—to people who are better off.

Geographic Targeting. Resource allocation formulas can be used to reduce government spending gaps across regions and ideally to favor geographic zones that are furthest behind. These formulas have been used, for example, as part of Bolivia's decentralization efforts since 1994 and have been associated with some large—and pro-poor—improvements in maternal and child health indicators. Targeting resources to poor regions and provinces may be most effectively implemented through nontraditional mechanisms for priority setting and implementation, such as social investment funds. In Bolivia, a recent impact evaluation concluded that such funds were responsible for a decline in under-five mortality from 88.5 to 65.6 per 1,000 live births over a five-year period (Newman and others 2002).

Changing the Allocation of Spending across Care Levels. Spending on health in developing countries is characterized by a high concentration of spending on secondary and tertiary infrastructure and personnel. Some governments have tried to scale back the share of hospital spending. Tanzania, for example, reduced the share of hospital spending from 60 percent in 2000 to 43 percent in 2002. Chapter 3 deals with the issue of how to couple expenditure reallocations across levels of care with measures to improve performance at each level of the health care system.

Targeting Specific Programs. Programs such as those delivering directly observed treatment short course (DOTS) for tuberculosis or integrated management of infant and childhood illness (IMCI) for child health are good examples of programs that may yield high returns to government spending at the margin. A recent World Bank study in India provides further support for the idea that the way government spending is allocated across programs makes a difference to its effect on the Millennium Development Indicators (World Bank 2003a). Successful public health programs—large-scale programs with a measurable health effect over at least a five-year period—are further discussed in chapter 8. All successful programs have several factors in common: technical innovation and stakeholder consensus, strong political leadership, coordination across agencies and management, effective use of information and financial resources, and participation of the beneficiary community.

Targeting Specific Population Groups. Many countries subsidize all government health services for everyone. These blanket subsidy schemes not only fail to target interventions that give rise to externalities but also fail to disproportionately benefit the poor—despite the stronger equity case for subsidizing their care and the fact that they tend to bear a disproportionate burden of malnutrition as well as child and maternal mortality. There are many proven ways to target the poor—for example, by delivering essential services in clinics or health posts that only poor families attend or by promoting and delivering services in a way that segments the market and appeals to those in low-income households.

Targeting Spending to Remove Bottlenecks. A planning and budgeting approach is to assess—for a country—the health sector impediments to faster progress, to identify ways of removing them, and to estimate both the costs of removing them and the likely effects of their removal on MDG outcomes (Soucat and others 2002). MDG analysis along these lines—referred to sometimes as *marginal budgeting for bottlenecks* (MBB)—has begun in several African countries and in some states of India (UNICEF and World Bank 2003). In Mali, key bottlenecks were identified for supporting home-based practices and delivering periodic and continual professional care. They included low access to affordable commodities and the need for community-based support for home-based care; low geographical access to preventive professional care (immunization, vitamin A supplementation, and prenatal care); shortages of qualified nurses and midwives; and an absence of effective third-party payment mechanisms for the poor for professional continuous care. Important health systems bottlenecks, such as human resources, drug availability, and health care management, are discussed in chapters 71–73.

Improving Policies toward Households as Producers and Demanders of Care

Households are at the center of any efforts to scale up; they not only demand and consume care, but they are also important producers of prevention and care. Policies to increase coverage of cost-effective interventions to reach the health MDGs, therefore, need to identify and influence the key constraints to both the production and the demand for those services at the household and community levels.

Lowering Financial Barriers. Low income is a barrier to the use of most health interventions, and economic growth is an important weapon in the war against malnutrition and mortality. However, social protection programs are also important. Successful schemes aimed at households and communities are discussed in chapter 56.

One part of the affordability equation is price. User charges for MDG interventions are to be discouraged. Why? Many of those interventions involve benefits that spill over to people who do not receive the intervention; high coverage of immunization is a classic example. However, an equity case also can be made for reducing prices facing the poor and near poor, even where no spillovers occur. Subsidies should be targeted to services with spillovers and to the poor. In practice, subsidies are often badly targeted in at least one respect if not both. Exceptions exist. In Ifakara, Tanzania, a voucher program for mosquito nets was launched successfully for pregnant women and children under five (Schellenberg and others 2001).

Some recent programs, especially in Latin America, have not only made health care affordable for the poor but have also made it profitable. Rather than simply reducing the cost of using specific interventions, these programs provide users with cash payments, which are linked to specific interventions and restricted to certain groups—often poor mothers and their children. The experience with these programs in targeting and achieving results is encouraging (Mesoamerica Nutrition Program Targeting Study Group 2002; Morris and others 2003; Palmer and others 2004).

Risk aversion coupled with the unpredictability of illness provides a motivation for pooling risks through an insurance scheme. The Arab Republic of Egypt, for example, introduced a school health insurance program for all children attending school. The program resulted in larger increases in coverage among the poor and achieved considerable effect on use and out-of-pocket expenditures (Yip and Berman 2001). However, insurance in the developing world is very limited, and those who are least able to smooth consumption without insurance are the least likely to have insurance coverage (Musgrove, Zeramdini, and Carrin 2002). Another problem is that many of the schemes are small scale, and evaluations of these schemes do not generally measure health effect or effect on equity, thus resulting in limited evidence (Palmer and others 2004).

Providing Information—Enhancing Knowledge. Lack of knowledge is a major factor behind poor health. It results in people not seeking care when needed, despite the absence of price barriers, and it also results in people—especially poor people—wasting limited resources on inappropriate care. Ignorance may also result in people not getting the maximum health gain out of inputs they have available to them and use. Many people do not know that hand washing confers much of the health benefit of piped water (see chapter 41). Not surprisingly, piped water has a much greater effect on the prevalence of diarrhea among the children of the better off and better educated. Better-educated women—especially those with a secondary education—achieve better health outcomes for themselves and their children not by using health-specific knowledge that they acquire at school, but by using general

numeracy and literacy skills learned at school to acquire health-specific knowledge later in life. Although better-educated girls will mean healthier women and healthier children in years to come, a shorter and more direct route to increasing health-specific knowledge and skills is through information dissemination, health promotion, and counseling in the health sector.

Several success stories exist. In Brazil, after health workers trained by IMCI provided information and counseling at health facilities and in the community, health knowledge among mothers improved, as did feeding practices (Santos and others 2001). After only 18 months, the nutritional status of children in the area improved as well. Social marketing and media campaigns—for example, malaria and social marketing of insecticide-treated nets (see chapter 21)—have also proved effective in some circumstances.

Reducing Time Costs Transportation systems, road infrastructure, and geography influence the demand for care delivered by formal providers through their effect on time costs, which can be substantial. In rural communities, where the roads are poor and the transportation unreliable, the time spent waiting for the transportation is also a major cost. Time costs tend to be a major issue for maternal mortality: health centers are unable to provide essential obstetric care for a complicated delivery, and women would have to travel to distant hospitals to get such services. Road rehabilitation and other transportation projects are important here, but so are subsidies linked to the use of health services. Malaysia and Sri Lanka provide free or subsidized transportation to hospitals in emergencies (Pathmanathan and others 2003). Other options for tackling inaccessibility include using outreach and establishing partnerships between government and nongovernmental organizations (NGOs), private providers, or community organizations.

Providing Access to Water and Sanitation The availability of adequate supplies of water and improved sanitation is associated with better maternal and child health outcomes, at least among the better educated, even after controlling for other influences. This result is not altogether surprising. Hand washing is easier if the household has piped water that provides readily available quantities of safe water. The safe disposal of feces is easier if the household has an improved form of sanitation. The developing world lags well behind the industrial world in both; the poorer people fare especially badly. They are less likely to be connected to a network, and the sources they rely on tend to be more costly per liter than the networked services used by the better off.

The challenge from a health perspective is to get maximum health benefits from investments in access to water and sanitation infrastructure. Efforts to work across sectors on water and health, in order to influence the health MDGs, are under way in Ethiopia, Peru, and Rwanda.

Improving Health Service Delivery

Health providers—in the public and private sectors, as well as in both formal and informal sectors—should deliver interventions of relevance to the MDGs. Many are efficient, deliver high quality services, and are responsive to their patients. Many, however, are not; many are not even there to deliver any services at all. As a result, resources—public and private—are often nonexistent, underused, or wasted.

Two things can make a difference. One is the quality of management. Better management means a clearer delineation of responsibilities and accountabilities inside organizations, a clearer link between performance and reward, and so on. Management means getting accountabilities right within an organization. The other thing that can make a difference is getting accountabilities right between the organization and the public (World Bank 2003d).

Improving Management—Increasing Accountability within Provider Organizations. Management styles in government-funded and government-implemented health schemes have recently begun to change, focusing on performance—that is, on outputs and outcomes—rather than on inputs and processes. Good performance is rewarded, financially or in some other way. The focus is on clients and on the belief that an organization is ultimately accountable to its clients. A client-oriented strategy emphasizes customer choice and satisfaction. Business techniques enhance performance and are a standard part of strategic planning.

This new approach is evident in several countries, and elements of the approach are visible in successful nutrition and child health programs (see chapter 56). For example, in Tamil Nadu's Integrated Nutrition Program, community nutrition workers were given clearly defined duties. Information on outputs not only enabled the community to keep the workers accountable but also enabled the nutrition workers to see how their program was working. In Ceara's Programa de Agentes de Saude, which is credited with a substantial reduction in child mortality (Victora and others 2000), health agents and nurse-supervisors were assigned clear tasks and given clear responsibilities. The intended outcomes of the program were emphasized to health workers and members of the public, and the health agents were held accountable through community-based monitoring and rewarded for good performance.

Governance. The accountability of provider organizations to the public can be improved through enhanced governance or contracting. Having community representatives participate in the governance and oversight of providers can improve the productivity and quality of public sector providers. In Burkina Faso, participation of community representatives in public primary health care clinics increased immunization coverage, the availability of essential drugs, and the percentage of

women with two or more prenatal visits. In Peru, comparisons of primary health care clinics with and without community participation in governance suggested decreases in staff absenteeism and waiting times and suggested increases in perceived quality by patients (Cotlear 1999). The approach probably works best for primary care and in situations in which strong technical and advisory support is provided to community representatives who are close to the service being delivered.

Contracting. Evidence on the effect of contracting within the public sector is mixed, and the experiences are mainly based on lessons learned from middle-income countries. In several countries in Europe and Central Asia, evidence shows a positive effect from performance-based payment, but that is not necessarily the same as contracting, which can occur without performance-related pay. The best evidence relates to the use of target payments for the attainment of a given level of coverage—for example, for immunization or cervical cytology at the primary care level (Langenbrunner 2003). In Argentina and Nicaragua, social security institutes have increased productivity by establishing capitation-based payments for an integrated package of inpatient and ambulatory services (Bitran 2001). Key influences on the success of contracts within the public sector include whether the provider has the ability to respond, whether service commitments are congruent with funding levels, whether output and key components of performance expectations are easily measurable, and how far capacity strengthening of the payer or funder is addressed.

Contracting with nonprofit organizations is most common in low-income countries (see chapter 12, which contains a longer discussion of contracting with NGOs). Most cases have had positive effects on target outcome or output variables. In Bangladesh, contracts with nonprofit organizations for planning and implementing an expanded program on immunization project were credited with a dramatic increase in immunization. In Haiti, contracting for a primary health care package also significantly increased immunization coverage (Eichler, Auxilia, and Pollock 2001). In Bangladesh, Madagascar, and Senegal, significant reductions in nutrition rates were attributed to contracting initiatives (Marek and others 1999). Only a few cases assess efficiency. Contracting with nonprofits works best when the contractors have well-functioning accountability arrangements and strong intrinsic motivation and when the government makes timely payments to the NGOs. The government needs to be capable of assessing, selecting, and managing the ongoing relationship with contractors. The methodological quality of evaluating contracting is often poor and needs to be improved. An exception is the Cambodian contracting trial that used a rigorous cluster randomized design, but the intervention groups had greater input of resources than the control communities, which may have been partly responsible for the difference in performance.

Results on contracting with for-profit private service providers are also mixed. Experience from the hospital sector warns that weak government contracting capacity often allows the provider to capture efficiency gains or to expand volume—not necessarily of cost-effective services—to generate more income. In Zimbabwe, the cost per service decreased, but the lack of volume control led to an increase in total cost (McPake and Hongoro 1995). Other adverse outcomes are possible. In Brazil, contracting with for-profit hospitals led to increases in access, but also increases in fraud (false billing) and cream-skimming to avoid costly patients (Slack and Savedoff 2001). These problems seem less pronounced in primary health care. In Peru and El Salvador, contracting with private primary health care providers increased access, choice, and consumer satisfaction (Fiedler 1996). Contracting with for-profit providers seems to work best when the government invests in the development of capacity to manage the contracting process (Mills, Bennett, and Russell 2001); when quality is at least as high in the private sector as in the public sector; and when the services involve primary care or other relatively observable services, such as diagnostic services.

Strengthening Core Public Health Functions

Vulnerable populations need to be protected from risks and damages, informed, and educated. Public health regulations need to be established and enforced. Infrastructure needs to be in place to reduce the impact of emergencies and disasters on health. All this action needs to be implemented through a public health system that is transparent and accountable. Governments in developing countries generally recognize that these public health functions are important, but they often lack the capacity and financial resources to implement them. Indeed, few low-income countries invest in these public health functions.

By employing public health professionals with core public health competencies, the government can develop and enforce standards; can monitor the health of communities and populations; and can emphasize health education, public information, health promotion, and disease prevention. Public action can help improve consumer knowledge and change attitudes so that private markets can operate effectively to meet the needs of the poor, for example, through social marketing of insecticide-treated bednets to reduce malaria transmission or of condoms for protection against HIV/AIDS.

Government-Led Monitoring and Evaluation. Integrated disease surveillance, program assessment, and collection and analysis of demographic and vital registration data are essential if governments and donors are to ascertain whether policies and programs are positively affecting health goals. Governments can use a list of intermediate indicators and

proxies for the goals that can help monitor progress, test the impact of policies, and adjust programs going forward (World Bank 2001). Such indicators should be simple, easily measurable, representative, easy to understand, scientifically robust, and ethical. They need to be assessed regularly because the MDGs themselves are difficult to collect, thus entail delays, and are therefore not useful for regular monitoring of progress. Greater investments are needed in systems to monitor these intermediate indicators and to track expenditures on public health.

Although some good practices in surveillance are being developed—for example, in Brazil, China, and India—few low-income developing countries can afford to invest in the infrastructure required for strong surveillance systems. Most rely on alternative short- to medium-term solutions for data gathering, such as intermittent household surveys, health facility surveys, and simplified facility-based routine reporting. A few countries have made special efforts to improve the surveillance of a specific intervention, such as AIDS and tuberculosis treatment or childhood immunization, whereas others have attempted to monitor progress toward a specific MDG. INDEPTH (International Network of Field Sites with Continuous Demographic Evaluation of Populations and Their Health in Developing Countries), which is supported by the Rockefeller Foundation with help from other donors, coordinates a range of surveillance sites, many of them in Africa, and the Health Metrics network aims at improving the quality of surveillance data. Some governments are explicitly developing or modifying their monitoring and evaluation framework to focus on the MDGs.

Intersectoral Actions—Going Beyond the Ministry of Health. A review of the evidence base for the key determinants of the health and nutrition MDGs identifies significant potential for intersectoral synergies (Wagstaff and Claeson 2004).

Transportation Although roads and transport are vital for health services, especially for reducing maternal mortality, it is not just the physical infrastructure that matters. Also important are the availability of transportation and the affordability of its use, as shown in a study in Nigeria (Eissen, Effenne, and Sabitu 1997). Transportation and roads complement health services. A 10-year study in Rajasthan, India, found that better roads and transportation helped women reach referral facilities, but many women still died because no corresponding improvements took place at household and facility levels. Working with the transportation sector is also important for reducing HIV transmission in many settings and making progress on the HIV/AIDS-related MDG.

Hygiene Improved hygiene (use of hand washing) and sanitation (use of latrines and safe disposal of children's stools) are at least as important as drinking water quality in shaping health

outcomes, specifically in reducing diarrhea and associated child mortality (Esrey and others 1991). Constructing water supply and sanitation facilities is not enough to improve health outcomes; sustained human behavior change must accompany the infrastructure investment. By collaborating with other sectors, the health sector can develop public health promotion and education strategies and implement them in partnership with agencies that plan, develop, and manage water resources. The health sector can also work with the private sector to manufacture, distribute, and promote affordable in-home water purification solutions and safe storage vessels—and advocate for water, sanitation, and hygiene interventions in strategies to reduce poverty.

Indoor Air Quality Indoor air pollution is caused by use of low-cost, traditional energy sources, such as coal and biomass for cooking and heating, the main source of energy for 3.5 billion people. Indoor air pollution is a major risk factor for pneumonia and associated deaths in children and for lung cancer in women who risk exposure during cooking (see chapter 42). Studies in China, Guatemala, and India are under way to improve access to efficient and affordable energy sources through local design, manufacturing, and dissemination of low-cost technologies, modern fuel alternatives, and renewable energy solutions. The community-based project in China was initiated by the Ministry of Health, which was troubled by the leveling off of child mortality reductions among the rural poor and was seeking ways to influence major environmental determinants of child mortality. The program combines appropriately improved stoves and ventilation with behavior-change modification; it is in an early stage of implementation, and results on outcomes are not yet available. Agricultural policies and practices influence food prices, farm incomes, diet diversity and quality, and household food security. Policies that focus on women's access to land, training, and agricultural inputs; on their roles in production; and on their income from agriculture are more likely to have a positive effect on nutrition than interventions without a focus on women, particularly if combined with other strategies, such as women's education and behavior change (Johnson-Welch 1999; Quisumbing 1995). The MDG agenda highlights the need not only to prioritize within health to achieve better health outcomes, but also to better inform priority setting in resource allocations between sectors, identifying intersectoral synergies and finding ways to maximize benefits for health.

COSTING AND FINANCING ADDITIONAL SPENDING FOR THE MDGS

Additional health spending will be required in many countries to accelerate progress toward the health goals (see chapter 12). What will it cost, and how will extra spending be financed?

Cost of Achieving the MDGs Globally

The global estimates of what it would cost to achieve the MDGs range from an additional US\$20 billion to US\$70 billion a year. A World Bank study (<http://www.worldbank.org/html/extdr/mdgassessment.pdf>) estimates that the additional official development assistance required to meet the health goals is in the range of US\$20 billion to US\$25 billion per year, which is roughly four times the current amount of official development assistance spending for health in 2002 (US\$6.5 billion) and three times all external financing, including that of foundations and loans from multilateral sources (see chapter 13). The dramatic shortfalls in resources required to achieve the MDGs were emphasized during the 2002 Monterrey Conference on Financing for Development, which brought significant attention to issues concerning the estimation of the cost of achieving the health MDGs.

Another analysis conducted by the Commission on Macroeconomics and Health (2001) of the World Health Organization estimated that an additional US\$40 billion to US\$52 billion annually would be required until 2015 to scale up the coverage for malaria, tuberculosis, HIV/AIDS, childhood mortality, and maternal mortality (Kumaranayake, Kurowski, and Conteh 2001). A third study using the production frontiers approach estimated that between US\$25 billion and US\$70 billion of additional spending was needed to bring poorly performing countries up to the level of high performers (Preker and others 2003). A fourth study prepared by the World Bank for the Development Committee estimated at least US\$30 billion annually in additional aid was needed to accelerate all the MDGs, including health (Development Committee 2003). Whatever the method of analysis, all global estimates show that reaching the MDGs will require significant additional resources compared with the current levels of funding for health.

Cost of Achieving the MDGs in Countries

Global estimates of what it costs to achieve the health MDGs are not very useful for countries wanting to plan and budget in order to reach the MDGs. The substantial range of estimates between US\$20 billion and US\$75 billion per year to achieve the MDGs at a global level has led to debates over the most appropriate costing method for country-specific analysis and to the development of new costing methodologies for obtaining consistent and reliable estimates to use for policy dialogue and decision making at the country levels. Some of the methods are summarized in box 9.2.

Preliminary Country Cost Estimates. Table 9.2 provides a set of preliminary country-level estimates for the cost of removing bottlenecks and accelerating progress toward the health MDGs (MBB method) and for the cost of achieving the health MDGs (Millennium Project tools) in selected

countries. The estimates are presented for illustration of orders of magnitude and should not be used for intercountry comparison.

Financing Extra Health Spending

The additional resources needed to reach the MDGs are large at both country and global levels, as discussed in the previous section. The key question is how to finance the extra spending that is needed.

Encouraging Risk Pooling Rather Than Out-of-Pocket Spending. Health spending can be broken down into three categories:

- private (out-of-pocket expenditures and private insurance)
- public (financing from general revenues and social insurance contributions)
- external sources (development assistance).

Box 9.2

Estimating the Cost of Scaling Up to Achieve the MDGs

The following are the country-specific models for MDG cost analysis:

- The *MDG Needs Assessments Model* developed by the United Nations Millennium Project, (Millennium Project 2004). The Millennium Project model yields total cost estimates for full coverage of the needs of a defined population with a comprehensive set of health interventions in a given year. It uses unit cost of covering one person multiplied by the total population in need in a given year to yield the direct health cost. Additional resource requirements are added (on the basis of assumptions rather than actual inputs) for, among other items, health system improvement, salary increases for human resources, administration and management, promotion of community demand, and research and development.
- The *Marginal Budgeting for Bottlenecks Model* developed by the United Nations Children's Fund, the World Bank, and the World Health Organization (Soucat and others 2002, 2004; UNICEF and World Bank 2003). The MBB model yields additional resources required for removing a set of health system bottlenecks that are considered to hinder the delivery of health services to the population through three delivery modes: family-community, outreach, and clinical levels. The MBB method also estimates the effect on outcomes (for instance, child and maternal mortality) of increased coverage and use of the health services provided. First, a set of high-impact services are selected on the basis of a country's epidemiological needs. These services are the same as those cost-effective priority interventions identified in the relevant disease control priorities chapters. Second, health system bottlenecks hindering delivery of these services are identified. Then, strategies for removal of bottlenecks are discussed, and the inputs are identified for improving coverage, for example, in a village. Cost estimates are based on these inputs by scaling up the cost to cover the district, province, or nation.
- Elasticity estimates through *econometric modeling* developed by the World Bank staff (Wagstaff and Claeson 2004). A few studies have used econometric techniques to analyze the effect on MDG outcomes of certain cross-sector determinants (such as economic growth, water and sanitation, education, and road infrastructure) as well as government expenditures on health. Econometric analysis has been used mostly to analyze the effect of changes in government health expenditures on outcomes using cross-sectional or panel data at a global scale. But in one particular study in India, the methodology was used to estimate the marginal costs of averting a child's death at the state level. The estimates could vary from as low as US\$2.40 per child death in a low-income state to US\$160 in a middle-income state in India.
- The *Maquette for Multisectoral Analysis* of MDGs is under development by the World Bank (Bourguignon and others 2004). The thesis for this new approach is that development aid is a key ingredient of a country's development process, but its effectiveness has to be assessed at the country level within each country's local implementation and macroeconomic constraints. The objective of the model is to calculate the financial needs to attain a targeted path to 2015 and determine an optimal allocation of additional funding toward different social sectors for the MDGs. This modeling framework is still at an early stage of development and will be applied later to countries. This model is anticipated to draw extensively from results of other models, such as the elasticity analysis and MBB models.

Source: Millennium Project 2003, 2004; Soucat and others 2004; Bourguignon and others 2004.

Table 9.2 Alternative Cost Estimates Using Millennium Project and Marginal Budgeting for Bottlenecks Models

Country	Model used	Cost estimate (US\$ per capita per year)
Ethiopia	MBB	3.56
Madagascar (Toamasina)	MBB	2.38
Mali (one region)	MBB	3.97
	Millennium Project	32.00
Bangladesh	Millennium Project	20.60
Cambodia	Millennium Project	22.50
Ghana	Millennium Project	24.70
Tanzania	Millennium Project	34.70
Uganda	Millennium Project	32.10

Source: Authors.

Private spending absorbs a larger share of income in poorer countries. In low-income countries, it absorbs a larger share of GDP, on average, than domestically financed public spending. In low-income and lower-middle-income countries, it invariably means out-of-pocket expenditures rather than private insurance (Musgrove, Zeramini, and Carrin 2002). This situation leaves many near-poor households heavily exposed to the risk of impoverishing health expenses. The risk is clearly greater the poorer the country, because poorer countries tend, on average, to have larger shares of poor people (World Bank 2000). Governments thus have a major role to play in helping shape effective risk-pooling mechanisms, in addition to increasing their own spending and targeting it to services for the poor that will have a large positive effect on the MDGs.

Getting Governments to Spend What They Can Afford

Government spending is an important part of the picture, and the issue is how much they can afford. Unlike private spending, government spending as a share of GDP is higher in richer countries. However, at any given per capita income, a surprising amount of variation occurs across countries in the share of GDP allocated to government health programs. Countries that appear able to spend similar shares of GDP on government health programs end up spending quite different amounts.

How can extra domestic resources be mobilized if countries are spending less than they can afford? Domestically financed government health spending comes from general revenues, social insurance contributions, or both. The amount of general revenues flowing into the health sector is the product of the amount of general (tax and nontax) revenues collected by the government (the *general revenue share*) and the share of general revenues allocated to the health sector (the *health share of government spending*) (Hay 2003). Low government health spending could be attributable to either share or both shares being low. In poorer countries, both shares are typically lower

than they are in richer countries. However, differences exist across countries that cannot be explained by per capita income alone.

Countries need to ascertain whether their low spending is caused by unduly low general revenues or by unduly low allocations to health and explore ways of making appropriate adjustments. Bolivia managed to raise its general revenue share consistently in the 1990s as the result of a sustained reform process begun in 1983. The health sector there has been one of the beneficiaries of this growth of tax revenues: government health spending as a share of GDP grew at an annual rate of nearly 10 percent in the 1990s.

Although raising domestic resources takes time, countries that can apparently afford to spend more out of their own resources should be encouraged to start the process. Development agencies have a role here—in providing technical support of tax reform, in helping develop government commitment to health in public expenditure allocations, and in giving financial assistance, both to ease the adjustment costs and to provide support while the gap is being closed between current and affordable spending.

Recognizing the Limits of Development Assistance. Official development assistance tends to account for a larger share of government health spending in poorer countries. Development assistance for health is especially important in Sub-Saharan Africa. Twelve countries in Sub-Saharan Africa had external funding exceeding 35 percent of total health expenditures in 2000 (World Bank 1998).

Increased development assistance is needed to achieve the MDGs. Development assistance, however, is not without its drawbacks. Many donors require that assistance be kept in parallel budgets outside the ministry of finance, which risks undermining government efforts to appropriately plan and target expenditures. Such off-budget expenditures make it difficult in some countries to properly target resources to

particular interventions, geographic locations, or population groups, even though such targeting may be essential for improving the effect of expenditures on outcomes and the probability of reaching the health goals. Donors often require recipient governments to maintain separate accounts and to provide separate progress reports, thereby increasing the administrative burden on weak health ministries. Most important, donor commitments of expenditures in health are short term, whereas the needs are permanent. Thus, any external financing must at some point be substituted with additional domestic revenues or expenditure reallocations. This substitution or transition to domestic sources of funding has typically been difficult to achieve, leading to a dropoff in effort in important health programs, such as immunizations and reproductive health services.

Consensus on how to improve aid effectiveness is growing among development partners, and partners at the High Level Forum on Health MDGs (<http://www.hlfhealthmdgs.org>). This agenda includes supporting countries in developing more MDG-responsive Poverty Reduction Strategy Papers, tracking resource flows, strengthening monitoring and evaluation, and more effectively dealing with the human resources crisis in health. Effective monitoring can help ensure that increased external funds do not simply lead to reduced domestic financing (the *fungibility problem*) but actually boost overall spending for health. In concert with moves affecting all development assistance, donors and governments are trying to see that in the health area external funds are pooled and that ministries can use a common management and reporting format. In addition, a research agenda to support acceleration toward the health MDGs is being proposed; it needs to focus on how to translate knowledge into action and on how to remove health systems constraints to scaling up coverage of cost-effective interventions that are available but do not reach those who need them (Claeson and others 2004; Task Force on Health Systems Research 2004).

NOTE

1. *Intervention* in this chapter refers to the direct action that leads to prevention or cure.

REFERENCES

- Bell, C., S. Devarajan, and H. Gersbach. 2003. *The Long-Run Economic Cost of AIDS: Theory and an Application to South Africa*. Washington, DC: World Bank.
- Bitran, R. 2001. "Paying Health Providers through Capitation in Argentina, Nicaragua, and Thailand: Output, Spending, Organizational Impact, and Market Structure." USAID Partners for Health Reform Project, Washington, DC.
- Bokhari, F., P. Gottret, and Y. Gai. Forthcoming. "Government Health Expenditures, Donor Funding and Health Outcomes." World Bank, Washington, DC.
- Bourguignon, F., M. Bussolo, H. Lofgren, H. Timmer, and D. van der Mensbrugge. 2004. "Towards Achieving the Millennium Development Goals in Ethiopia: An Economywide Analysis of Alternative Scenarios." World Bank, Washington, DC.
- Claeson, M., C. Griffin, T. Johnston, M. McLachan, A. Soucat, A. Wagstaff, and A. Yazbeck. 2001. "Poverty-Reduction and the Health-Sector." In *Poverty Reduction Strategy Sourcebook*. Washington, DC: World Bank.
- Claeson, M., A. Wagstaff, E. Bos, P. Hay, and J. Baudouy. 2004. "The Case for Mobilizing New Research behind the Health Millennium Development Goals." In *Global Forum Update on Research for Health 2005*, 73–75. Geneva: Global Forum.
- Commission on Macroeconomics and Health. 2001. "Macroeconomics and Health: Investing in Health for Economic Development—Report of the Commission on Macroeconomics and Health." December 20, World Health Organization, Geneva.
- Cotlear, D. 1999. "Peru: Improving Health Care for the Poor." Human Development Department (Latin America and the Caribbean Human Development) Paper 57, World Bank, Washington, DC.
- Development Committee. 2003. "Supporting Sound Policies with Adequate and Appropriate Financing." Discussion paper, World Bank, Washington DC.
- Eichler, R. 2001. "Improving Immunization Coverage in an Innovative Primary Health Care Delivery Model: Lessons from Burkina Faso's Bottom up Planning, Oversight, and Resource Control Approach That Holds Providers Accountable for Results." Discussion paper, World Bank, Washington, DC.
- Eissen, E., D. Effenne, and K. Sabitu. 1997. "Community Loan Funds and Transport Services for Obstetric Emergencies in Northern Nigeria." *International Journal of Gynecology and Obstetrics* 59 (Suppl. 2): S237–44).
- Esrey, S. A., J. B. Potash, L. Roberts, and C. Shiff. 1991. "Effects of Improved Water Supply and Sanitation on Ascariasis, Diarrhea, Dracunculiasis, Hookworm Infection, Schistosomiasis, and Trachoma." *Bulletin of the World Health Organization* 69 (5): 609–21.
- FAO (Food and Agriculture Organization of the United Nations). 2000. *The State of Food Security in the World*. Rome: FAO.
- Fiedler, J. L. 1996. "The Privatization of Health Care in Three Latin American Social Security Systems." *Health Policy and Planning* 11 (4): 406–17.
- Filmer, D., and L. Pritchett. 1999. "The Impact of Public Spending on Health: Does Money Matter?" *Social Science and Medicine* 49, pp. 1309–23.
- Gwatkin, D., S. Rutstein, K. Johnson, and R. P. Pande. 2000. *Socio-economic Differences in Health, Nutrition, and Population*. Washington, DC: World Bank.
- Hay, R. 2003. "The 'Fiscal Space' for Publicly Financed Health Care." Oxford Policy Institute Policy Brief, Washington, DC.
- Johnson-Welch, C. 1999. "Focusing on Women Works: Research on Improving Micronutrient Status through Food-Based Interventions." International Center for Research on Women, Washington, DC.
- Jones, G., R. W. Steketee, R. E. Black, Z. A. Bhutta, and S. S. Morris. 2003. "How Many Child Deaths Can We Prevent this Year?" *Lancet* 362 (9377): 65–71.
- Kumaranayake, L., Christoph Kurowski, and Lesong Conteh. 2001. "Costs of Scaling Up Priority Health Interventions in Low-Income and Selected Middle-Income Countries: Methodology and Estimates." Commission for Macroeconomics and Health Working Paper WG5:19, World Health Organization, Geneva.
- Langenbrunner, J. 2003. "Resource Allocation and Purchasing in ECA Region: A Review." Discussion paper, World Bank, Washington, DC.
- Marek, T., I. Diallo, B. Ndiaye, and J. Rakotosalama. 1999. "Successful Contracting of Prevention Services: Fighting Malnutrition in Senegal and Madagascar." *Health Policy and Planning* 14 (4): 382–89.

- McPake, B, and C. Hongoro. 1995. "Contracting Out of Clinical Services in Zimbabwe." *Social Science and Medicine* 41 (1): 13–24.
- Mesoamerica Nutrition Program Targeting Study Group. 2002. "Targeting Performance of Three Large-Scale, Nutrition-Oriented Programs in Central America and Mexico." *Food and Nutrition Bulletin* 232 (2): 162–74.
- Millennium Project. 2003. "Millennium Development Goal Country Case Studies: Methodology and Preliminary Results." October. United Nations, NY.
- . 2004. "Millennium Development Goals Needs Assessments: Country Case Studies of Bangladesh, Cambodia, Ghana, Tanzania, and Uganda." Unpublished working paper for the Millennium Project. United Nations, NY.
- Mills, A., S. Bennett, and S. Russell. 2001. *The Challenge of Health Sector Reform: What Must Governments Do?* New York: St. Martin's Press.
- Morris, S., E. Flores, P. Olinto, and J. Medina. 2003. "A Randomized Trial of Conditional Cash Transfers to Household and Peripheral Health Centres: Impact on Child Health and Demand for Health Services." Presented at Fourth International Health Economics Association World Congress, San Francisco, CA, June.
- Musgrove, P., R. Zeramini, and G. Carrin. 2002. "Basic Patterns in National Health Expenditure." *Bulletin of the World Health Organization* 80 (2): 134–42.
- Newman, J., M. Pradhan, L. Rawlings, G. Ridder, R. Coa, and J. Evia. 2002. "An Impact Evaluation of Education, Health, and Water Supply Investments of the Bolivian Social Investment." *World Bank Economic Review* 6 (2): 241–74.
- OECD (Organisation for Economic Co-operation and Development) Development Assistance Committee. 2000. *Recent Trends in Official Development Assistance to Health*. Paris: OECD.
- Palmer, N., D. Mueller, L. Gilson, A. Mills, and A. Haines. 2004. "Health Financing to Promote Access in Low Income Settings—How Much Do We Know?" *Lancet* 364: 1365–70.
- Pathmanathan, I., J. Liljestrand, J. M. Martins, L. C. Rajapaksa, C. Lissner, A. de Silva, and others. 2003. "Investing in Maternal Health: Learning from Malaysia and Sri Lanka." Health, Nutrition, and Population Department, World Bank, Washington, DC.
- Preker, A. S., E. Suzuki, F. Bustero, A. Soucat, and J. Langenbrunner. 2003. "Costing the Millennium Development Goals." Background paper to *The Millennium Development Goals for Health: Rising to the Challenges*, World Bank, Washington, DC.
- Quisumbing, A. R. 1995. "Gender Differences in Agricultural Productivity: A Survey of Empirical Evidence." IFPRI Discussion Paper 5. International Food Policy Research Institute, Washington, DC.
- Rajkumar, A., and V. Swaroop. 2002. "Public Spending and Outcomes: Does Governance Matter?" Policy Research Working Paper 2840, World Bank, Washington, DC.
- Ramana, G. 2003. Background paper for *The Millennium Development Goals for Health: Rising to the Challenges*. World Bank, Washington, DC.
- Santos, I., C. G. Victora, J. Martinez, H. Goncalves, D. P. Gigante, N. J. Valle, and G. Peltó. 2001. "Nutrition Counselling Increases Weight Gain among Brazilian Children." *Journal of Nutrition* 131 (11): 2966–73.
- Schellenberg, J. R., S. Abdulla, R. Nathan, O. Mukasa, T. J. Marchant, N. Kikumbih, and others. 2001. "Effect of Large-Scale Social Marketing of Insecticide-Treated Nets on Child Survival in Rural Tanzania." *Lancet* 357 (9264): 1241–47.
- Sen, A. 2002. "Why Health Equity?" *Health Economics* 11 (8): 659–66.
- Slack, K., and W. D. Savedoff. 2001. "Public Purchaser–Private Provider Contracting for Health Services: Examples from Latin America and the Caribbean." Sustainable Development Department Technical Paper 111, Inter-American Development Bank, Washington, DC.
- Soucat, A., W. Van Lerberghe, F. Diop, S. Nguyen, and R. Knippenberg. 2002. "Marginal Budgeting for Bottlenecks: A New Costing and Reallocation Practice to Buy Health Results." World Bank, Washington, DC.
- . 2004. "Marginal Budgeting for Bottlenecks: A New Costing and Resource Allocation Practice to Buy Health Results—Using Health Sector's Budget Expansion to Progress toward the Millennium Development Goals in Sub-Saharan Africa." Unpublished paper. World Bank, Washington, DC.
- Task Force on Health Systems Research. 2004. "Informed Choices for Attaining the Millennium Development Goals: Towards a Cooperative Agenda for Health Systems Research." *Lancet* 364: 997–1003.
- UNAIDS (United Nations Joint Programme on HIV/AIDS). 2004. *Report on the Global AIDS Epidemic*. Geneva: UNAIDS.
- UNICEF (United Nations Children's Fund). 2001. *Progress since the World Summit for Children: A Statistical Review*. New York: UNICEF.
- Victora, C., F. Barros, J. Vaughan, A. Silva, and E. Tomasi. 2000. "Explaining Trends in Inequities: Evidence from Brazilian Child Health Studies." *Lancet* 356 (9235):1093–38.
- Wagstaff, A., and M. Claeson. 2004. *The Millennium Development Goals for Health: Rising to the Challenges*. Washington, DC: World Bank.
- . 2005. "The Millennium Development Goals for Health: Rising to the Challenges: Appendix A, pp. 169–174." World Bank. Washington, DC.
- Wagstaff, A., and E. van Doorslaer. 2003. "Catastrophe and Impoverishment in Paying for Health Care: with Applications to Vietnam 1993–1998." *Health Economics* 12 (11): 921–34.
- World Bank. 1998. *Assessing Aid: What Works, What Doesn't, and Why*. Oxford, U.K.: Oxford University Press.
- . 2000. *World Development Report 2000/2001: Attacking Poverty*. New York: Oxford University Press.
- . 2001. "Health, Nutrition, and Population Development Goals: Measuring Progress Using the Poverty Reduction Strategy Framework." Report of a World Bank Consultation, World Bank, Washington, DC.
- . 2003a. *Attaining the Millennium Development Goals in India: How Likely and What Will It Take?* Washington, DC: World Bank.
- . 2003b. *Global Economic Prospects and the Developing Countries*. Washington, DC: World Bank.
- . 2003c. *World Development Indicators 2003*. Washington, DC: World Bank.
- . 2003d. *World Development Report 2004: Making Services Work for Poor People*. Washington, DC: World Bank.
- Yip, W., and P. Berman. 2001. "Targeted Health Insurance in a Low Income Country and Its Impact on Access and Equity in Access: Egypt's School Health Insurance." *Health Economics* 10 (3): 207–20.