

WORLD DEVELOPMENT REPORT 1993

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INVESTING IN HEALTH EXECUTIVE SUMMARY





World Development Report 1993
Investing in Health

Executive Summary

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Washington, D.C.

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This executive summary is reproduced from *World Development Report 1993*, published by Oxford University Press for the World Bank. The Report is a study by the Bank's staff, and the judgments made therein do not necessarily reflect the views of the Board of Executive Directors or the governments they represent. The map that accompanies the text has been prepared solely for the convenience of the reader; the designations and presentation of material in it do not imply the expression of any opinion whatsoever on the part of the World Bank, its affiliates, or its Board or member countries concerning the legal status of any country, territory, city, or area, or of the authorities thereof, or concerning the delimitation of its boundaries or its national affiliation. The map on the cover, which shows the eight demographic regions used in the analysis in the Report, seeks to convey an impression of the general improvement in health experienced worldwide during the past forty years.

This Report has been prepared by a team led by Dean T. Jamison and comprising José-Luis Bobadilla, Robert Hecht, Kenneth Hill, Philip Musgrove, Helen Saxenian, Jee-Peng Tan, and, part-time, Seth Berkley and Christopher J. L. Murray. Anthony R. Measham drafted and coordinated contributions from the Bank's Population, Health, and Nutrition Department. Valuable contributions and advice were provided by Susan Cochrane, Thomas W. Merrick, W. Henry Mosley, Alexander Preker, Lant Pritchett, and Michael Walton. Extensive input to the Report from the World Health Organization was coordinated through a Steering Committee chaired by Jean-Paul Jarrel. An Advisory Committee chaired by Richard G. A. Feachem provided valuable guidance at all stages of the Report's preparation. Members of these committees are listed in the Acknowledgments. Peter Cowley, Anna E. Maripuu, Barbara J. McKinney, Karima Saleh, and Abdo S. Yazbeck served as research associates, and interns Lecia A. Brown, Caroline J. Cook, Anna Godal, and Vito Luigi Tanzi assisted the team. The work was carried out under the general direction of Lawrence H. Summers and Nancy Birdsall.

Many others inside and outside the Bank provided helpful comments and contributions (see the Bibliographical note). The Bank's International Economics Department contributed to the data appendix and was responsible for the World Development Indicators. The production staff of the Report included Ann Beasley, Stephanie Gerard, Jane Gould, Kenneth Hale, Jeffrey N. Lecksell, Nancy Levine, Hugh Nees, Kathy Rosen, and Walton Rosenquist. The support staff was headed by Rhoda Blade-Charest and included Laitan Alli and Nyambura Kimani. Trinidad S. Angeles served as administrative assistant. John Browning was the principal editor, and Rupert Pennant-Rea edited two chapters.

Preparation of this Report was immensely aided by contributions of the participants in a series of consultations and seminars; the subjects and the names of participants are listed in the Acknowledgments. The consultations could not have occurred without financial cooperation from the following organizations, whose assistance is warmly acknowledged: the Canadian International Development Association, the Danish International Development Agency, the Edna McConnell Clark Foundation, the Norwegian Ministry of Foreign Affairs, the Rockefeller Foundation, the Swiss Development Cooperation, the U.S. Agency for International Development, the Overseas Development Administration of the United Kingdom, and the Environmental Health Division and the Special Programme for Research and Training in Tropical Diseases of the World Health Organization. The World Health Organization and the United Nations Children's Fund contributed to the preparation of the statistical appendices. Three academic institutions—the Harvard Center for Population and Development Studies, the London School of Hygiene and Tropical Medicine, and the Swiss Tropical Institute—provided important support for the preparation of the Report.



Foreword

World Development Report 1993, the sixteenth in this annual series, examines the interplay between human health, health policy, and economic development. The three most recent reports—on the environment, on development strategies, and on poverty—have furnished an overview of the goals and means of development. This year's report on health, like next year's on infrastructure, examines in depth a single sector in which the impact of public finance and public policy is of particular importance.

Countries at all levels of income have achieved great advances in health. Although an unacceptably high proportion of children in the developing world—one in ten—die before reaching age 5, this number is less than half that of 1960. Declines in poverty have allowed households to increase consumption of the food, clean water, and shelter necessary for good health. Rising educational levels have meant that people are better able to apply new scientific knowledge to promote their own and their families' health. Health systems have met the demand for better health through an expanded supply of services that offer increasingly potent interventions.

Yet developing countries, and especially their poor, continue to suffer a heavy burden of disease, much of which can be inexpensively prevented or cured. (If the child mortality rate in developing countries were reduced to the level that prevails in high-income countries, 11 million fewer children would die each year.) Furthermore, increasing numbers of developing countries are beginning to face the problems of rising health system costs now experienced by high-income countries.

This Report advocates a three-pronged ap-

proach to government policies for improving health in developing countries. First, governments need to foster an economic environment that enables households to improve their own health. Growth policies (including, where necessary, economic adjustment policies) that ensure income gains for the poor are essential. So, too, is expanded investment in schooling, particularly for girls.

Second, government spending on health should be redirected to more cost-effective programs that do more to help the poor. Government spending accounts for half of the \$168 billion annual expenditure on health in developing countries. Too much of this sum goes to specialized care in tertiary facilities that provides little gain for the money spent. Too little goes to low-cost, highly effective programs such as control and treatment of infectious diseases and of malnutrition. Developing countries as a group could reduce their burden of disease by 25 percent—the equivalent of averting more than 9 million infant deaths—by redirecting to public health programs and essential clinical services about half, on average, of the government spending that now goes to services of low cost-effectiveness.

Third, governments need to promote greater diversity and competition in the financing and delivery of health services. Government financing of public health and essential clinical services would leave the coverage of remaining clinical services to private finance, usually mediated through insurance, or to social insurance. Government regulation can strengthen private insurance markets by improving incentives for wide coverage and for cost control. Even for publicly financed clinical ser-


vices, governments can encourage competition and private sector involvement in service supply and can help improve the efficiency of the private sector by generating and disseminating key information. The combination of these measures will improve health outcomes and contain costs while enhancing consumer satisfaction.

Significant reforms in health policy are feasible, as experience in several developing countries has shown. The donor community can assist by financing the transitional costs of change, especially in low-income countries. The reforms outlined in this Report will translate into longer, healthier, and more productive lives for people around the world, and especially for the more than 1 billion poor.

The World Health Organization (WHO) has been a full partner with the World Bank at every step of the preparation of the Report. I would like to record my appreciation to WHO and to its many staff members at global and regional levels who facilitated this partnership. The Report has benefited greatly from WHO's extensive technical expertise. Starting from the Report's conception, WHO participated actively by providing data on various aspects of health development and systematic input for many technical consultations.

Perhaps WHO's most significant contribution was in a jointly sponsored assessment of the global burden of disease, which is a key element of the Report. I look forward to continued collaboration between the World Bank and WHO in the discussion and implementation of the messages in this Report. The United Nations Children's Fund (UNICEF), bilateral agencies, and other institutions also contributed their expertise, and the World Bank is grateful to them as well. Specific acknowledgments are provided elsewhere in the Report.

Like its predecessors, *World Development Report 1993* includes the World Development Indicators, which offer selected social and economic statistics on 127 countries. The Report is a study by the Bank's staff, and the judgments made herein do not necessarily reflect the views of the Board of Directors or of the governments they represent.



Lewis T. Preston
President
The World Bank

May 31, 1993



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Overview

Over the past forty years life expectancy has improved more than during the entire previous span of human history. In 1950 life expectancy in developing countries was forty years; by 1990 it had increased to sixty-three years. In 1950 twenty-eight of every 100 children died before their fifth birthday; by 1990 the number had fallen to ten. Smallpox, which killed more than 5 million annually in the early 1950s, has been eradicated entirely. Vaccines have drastically reduced the occurrence of measles and polio. Not only do these improvements translate into direct and significant gains in well-being, but they also reduce the economic burden imposed by unhealthy workers and sick or absent schoolchildren. These successes have come about in part because of growing incomes and increasing education around the globe and in part because of governments' efforts to expand health services, which, moreover, have been enriched by technological progress.

Despite these remarkable improvements, enormous health problems remain. Absolute levels of mortality in developing countries remain unacceptably high: child mortality rates are about ten times higher than those in the established market economies. If death rates among children in poor countries were reduced to those prevailing in the rich countries, 11 million fewer children would die each year. Almost half of these preventable deaths are a result of diarrheal and respiratory illness, exacerbated by malnutrition. In addition, every year 7 million adults die of conditions that could be inexpensively prevented or cured; tuberculosis alone causes 2 million of these deaths. About 400,000 women die from the direct complications of pregnancy and childbirth. Maternal mortality

ratios are, on average, thirty times as high in developing countries as in high-income countries.

Although health has improved even in the poorest countries, the pace of progress has been uneven. In 1960 in Ghana and Indonesia about one child in five died before reaching age 5—a child mortality rate typical of many developing countries. By 1990 Indonesia's rate had dropped to about one-half the 1960 level, but Ghana's had fallen only slightly. Table 1 provides a summary of regional progress in mortality reduction between 1975 and 1990. (Figure 1 illustrates the demographic regions used in Table 1 and frequently throughout this Report.)

In addition to premature mortality, a substantial portion of the burden of disease consists of disability, ranging from polio-related paralysis to blindness to the suffering brought about by severe psychosis. To measure the burden of disease, this Report uses the disability-adjusted life year (DALY), a measure that combines healthy life years lost because of premature mortality with those lost as a result of disability.

There is huge variation in per person loss of DALYs across regions, mainly because of differences in premature mortality; regional differences in loss of DALYs as a result of disability are much smaller (Figure 2). The total loss of DALYs is referred to as the global burden of disease.

The world is facing serious new health challenges. By 2000 the growing toll from acquired immune deficiency syndrome (AIDS) in developing countries could easily rise to more than 1.8 million deaths annually, erasing decades of hard-won reductions in mortality. The malaria parasite's increased resistance to available drugs could lead to

The first six regions named in the key are at intermediate stages of the demographic transition.

Figure 1 Demographic regions used in this Report

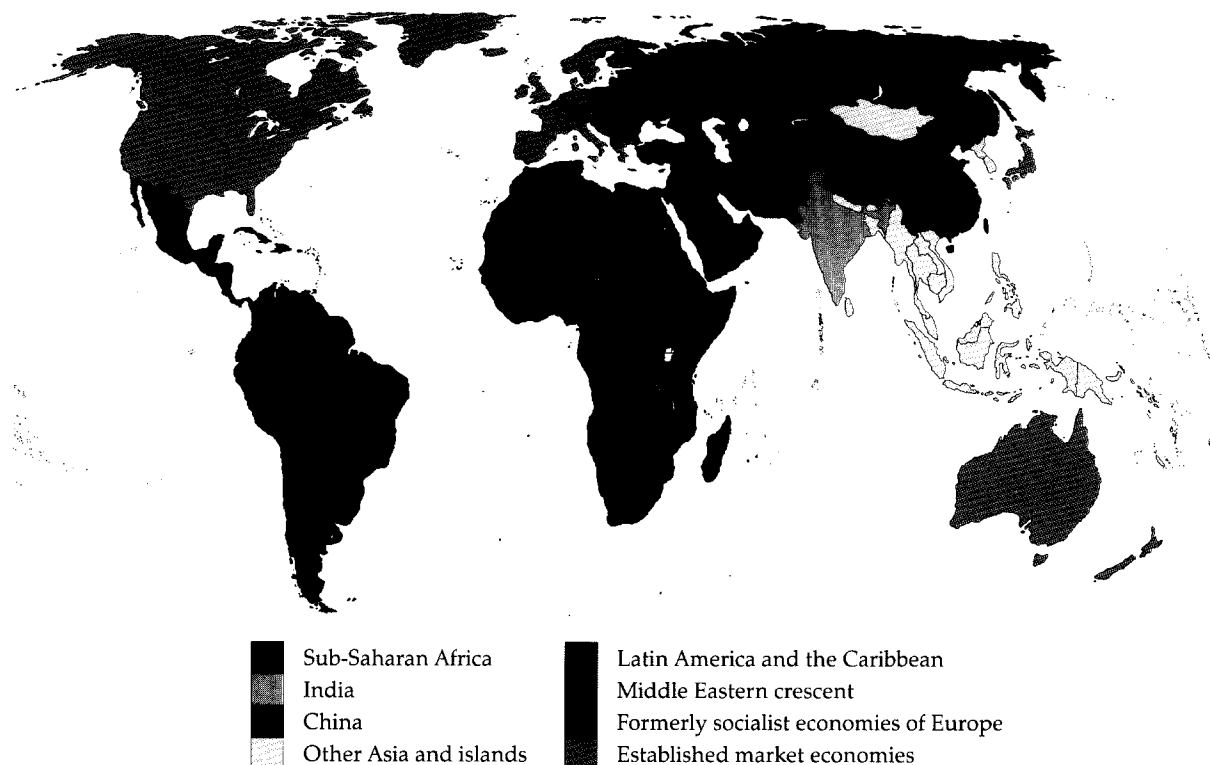


Table 1 Population, economic indicators, and progress in health by demographic region, 1975-90

Region	Population, 1990 (millions)	Deaths, 1990 (millions)	Income per capita		Child mortality		Life expectancy at birth (years)	
			Dollars, 1990	Growth rate, 1975-90 (percent per year)	1975	1990	1975	1990
Sub-Saharan Africa	510	7.9	510	-1.0	212	175	48	52
India	850	9.3	360	2.5	195	127	53	58
China	1,134	8.9	370	7.4	85	43	56	69
Other Asia and islands	683	5.5	1,320	4.6	135	97	56	62
Latin America and the Caribbean	444	3.0	2,190	-0.1	104	60	62	70
Middle Eastern crescent	503	4.4	1,720	-1.3	174	111	52	61
Formerly socialist economies of Europe (FSE)	346	3.8	2,850	0.5	36	22	70	72
Established market economies (EME)	798	7.1	19,900	2.2	21	11	73	76
Demographically developing group ^a	4,123	39.1	900	3.0	152	106	56	63
FSE and EME	1,144	10.9	14,690	1.7	25	15	72	75
World	5,267	50.0	4,000	1.2	135	96	60	65

Note: Child mortality is the probability of dying between birth and age 5, expressed per 1,000 live births; life expectancy at birth is the average number of years that a person would expect to live at the prevailing age-specific mortality rates.

a. The countries of the demographic regions Sub-Saharan Africa, India, China, Other Asia and islands, Latin America and the Caribbean, and Middle Eastern crescent.

Source: For income per capita, World Bank data; for other items, Appendix A.

a doubling of malaria deaths, to nearly 2 million a year within a decade. Rapid progress in reducing child mortality and fertility rates will create new demands on health care systems as the aging of populations brings to the fore costly noncommunicable diseases of adults and the elderly. Tobacco-related deaths from heart disease and cancers alone are likely to double by the first decade of the next century, to 2 million a year, and, if present smoking patterns continue, they will grow to more than 12 million a year in developing countries in the second quarter of the next century.

Health systems and their problems

Although health services are only one factor in explaining past successes, the importance of their

role in the developing world is not in doubt. Public health measures brought about the eradication of smallpox and have been central to the reduction in deaths caused by vaccine-preventable childhood diseases. Expanded and improved clinical care has saved millions of lives from infectious diseases and injuries. But there are also major problems with health systems that, if not resolved, will hamper progress in reducing the burden of premature mortality and disability and frustrate efforts to respond to new health challenges and emerging disease threats.

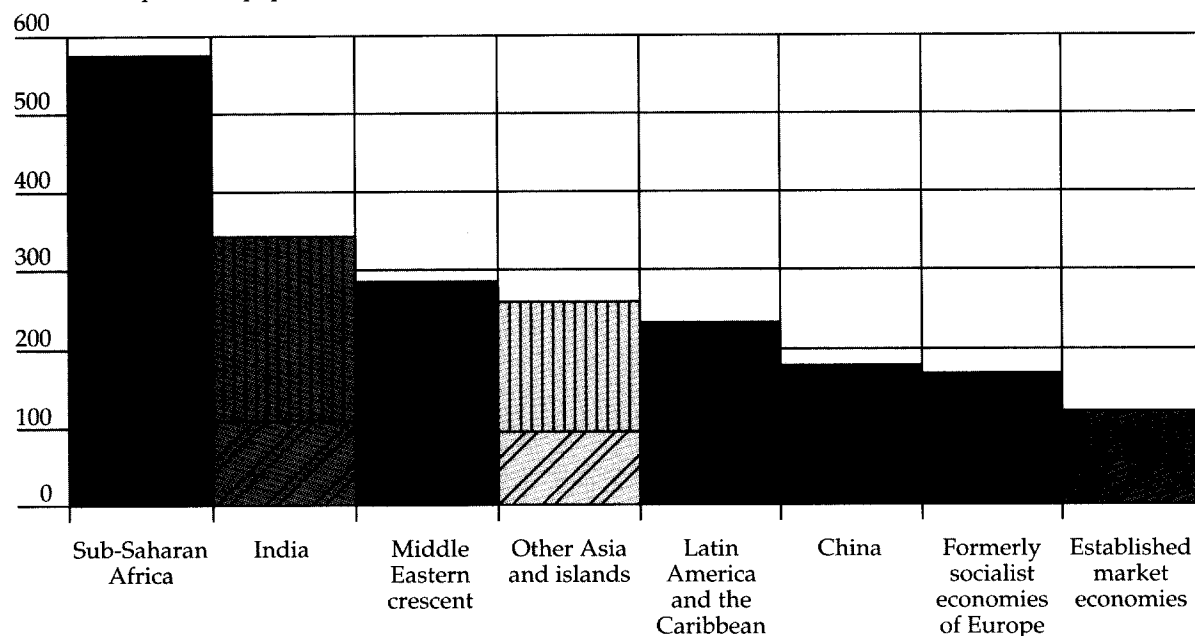
- *Misallocation.* Public money is spent on health interventions of low cost-effectiveness, such as surgery for most cancers, at the same time that critical and highly cost-effective interventions, such as treatment of tuberculosis and sexually

The disease burden is highest in poor countries, but disability remains a problem in all regions.

Figure 2 Burden of disease attributable to premature mortality and disability, by demographic region, 1990

▣ Premature mortality
 ▤ Disability

DALYs lost per 1,000 population



Source: Appendix B.

transmitted diseases (STDs), remain underfunded. In some countries a single teaching hospital can absorb 20 percent or more of the budget of the ministry of health, even though almost all cost-effective interventions are best delivered at lower-level facilities.

- *Inequity.* The poor lack access to basic health services and receive low-quality care. Government spending for health goes disproportionately to the affluent in the form of free or below-cost care in sophisticated public tertiary care hospitals and subsidies to private and public insurance.

- *Inefficiency.* Much of the money spent on health is wasted: brand-name pharmaceuticals are purchased instead of generic drugs, health workers are badly deployed and supervised, and hospital beds are underutilized.

- *Exploding costs.* In some middle-income developing countries health care expenditures are growing much faster than income. Increasing numbers of general physicians and specialists, the availability of new medical technologies, and expanding health insurance linked to fee-for-service payments together generate a rapidly growing demand for costly tests, procedures, and treatments.

World health spending—and thus also the potential for misallocation, waste, and inequitable distribution of resources—is huge. For the world as a whole in 1990, public and private expenditure on health services was about \$1,700 billion, or 8 percent of total world product. High-income countries spent almost 90 percent of this amount, for an average of \$1,500 per person. The United States alone consumed 41 percent of the global total—more than 12 percent of its gross national product (GNP). Developing countries spent about \$170 billion, or 4 percent of their GNP, for an average of \$41 per person—less than one-thirtieth the amount spent by rich countries.

In the *low-income countries* government hospitals and clinics, which account for the greatest part of the modern medical care provided, are often inefficient, suffering from highly centralized decision-making, wide fluctuations in budgetary allocations, and poor motivation of facility managers and health care workers. Private providers—mainly religious nongovernmental organizations (NGOs) in Africa and private doctors and unlicensed practitioners in South Asia—are often more technically efficient than the public sector and offer a service that is perceived to be of higher quality, but they are not supported by government policies. In low-income countries the poor often

lose out in health because public spending in the sector is heavily skewed toward high-cost hospital services that disproportionately benefit better-off urban groups. In Indonesia, despite concerted government efforts in the 1980s to improve health services for the poor, government subsidies to health for the richest 10 percent of households in 1990 were still almost three times the subsidies going to the poorest 10 percent of Indonesians.

In *middle-income countries* governments frequently subsidize insurance that protects only the relatively wealthy—a small, affluent minority in the case of private insurance in South Africa and Zimbabwe and, in Latin America, the larger industrial labor force covered by compulsory public insurance (so-called social insurance). The bulk of the population, especially the poor, relies heavily on out-of-pocket payments and on government services that may be largely inaccessible to them. In Peru, for example, more than 60 percent of the poor have to travel for more than an hour to obtain primary health care, as compared with less than 3 percent of the better-off. The quality of care is also low: drugs and equipment are in short supply; patient waiting times are long and medical consultations are short; and misdiagnoses and inappropriate treatment are common.

In the *formerly socialist economies*, where governments have historically been responsible for both the financing and the delivery of health care, health care is free in principle, and wide coverage of the population has been achieved. This has led to greater apparent equity. But in reality, better-off consumers make informal out-of-pocket payments to get better care: about 25 percent of health costs in Romania and 20 percent in Hungary, for example, are under-the-table payments for pharmaceuticals and gratuities to health care providers. Inefficiency is also widespread because the government-run health system is highly centralized, bureaucratic, and unresponsive to citizens. Governments have been slow to regulate workplace safety and environmental pollution and have failed to mount effective campaigns against unhealthy personal behaviors—especially alcohol consumption and cigarette smoking. In recent years real government spending for health has fallen dramatically in the course of the transition to more market-oriented economies. The public sector has suffered from serious shortages of drugs and equipment and a lack of skills to manage changing health institutions. The consequences have been declining staff morale and falling quality of care.

The roles of the government and of the market in health

Three rationales for a major government role in the health sector should guide the reform of health systems.

- Many health-related services such as information and control of contagious disease are *public goods*. One person's use of health information does not leave less available for others to consume; one person cannot benefit from control of malaria-carrying mosquitoes while another person in the same area is excluded. Because private markets alone provide too little of the public goods crucial for health, government involvement is necessary to increase the supply of these goods. Other health services have large *externalities*: consumption by one individual affects others. Immunizing a child slows transmission of measles and other diseases, conferring a positive externality. Polluters and drunk drivers create negative health externalities. Governments need to encourage behaviors that carry positive externalities and to discourage those with negative externalities.

- Provision of cost-effective health services to the poor is an effective and socially acceptable approach to *poverty reduction*. Most countries view access to basic health care as a human right. This perspective is embodied in the goal, "Health for All by the Year 2000," of the conference held by the World Health Organization (WHO) and the United Nations Children's Fund (UNICEF) at Alma-Ata in 1978, which launched today's primary health care movement. Private markets will not give the poor adequate access to essential clinical services or the insurance often needed to pay for such services. Public finance of essential clinical care is thus justified to alleviate poverty. Such public funding can take several forms: subsidies to private providers and NGOs that serve the poor; vouchers that the poor can take to a provider of their choice; and free or below-cost delivery of public services to the poor.

- Government action may be needed to compensate for problems generated by *uncertainty* and *insurance market failure*. The great uncertainties surrounding the probability of illness and the efficacy of care give rise both to strong demand for insurance and to shortcomings in the operation of private markets. One reason why markets may work poorly is that variations in health risk create incentives for insurance companies to refuse to insure the very people who most need health insurance—those who are already sick or are likely to become

ill. A second has to do with "moral hazard": insurance reduces the incentives for individuals to avoid risk and expense by prudent behavior and can create both incentives and opportunities for doctors and hospitals to give patients more care than they need. A third has to do with the asymmetry in information between provider and patient concerning the outcomes of intervention; providers advise patients on choice of treatment, and when the providers' income is linked to this advice, excessive treatment can result. As a consequence of these last two considerations, in unregulated private markets costs escalate without appreciable health gains to the patient. Governments have an important role to play in regulating privately provided health insurance, or in mandating alternatives such as social insurance, in order to ensure widespread coverage and hold down costs.

If governments do intervene, they must do so intelligently, or they risk exacerbating the very problems they are trying to solve. When governments become directly involved in the health sector—by providing public health programs or financing essential clinical services for the poor—policymakers face difficult decisions concerning the allocation of public resources. For any given amount of total spending, taxpayers and, in some countries, donors want to see maximum health gain for the money spent. An important source of guidance for achieving value for money in health spending is a measure of the cost-effectiveness of different health interventions and medical procedures—that is, the ratio of costs to health benefits (DALYs gained).

Until recently, little has been done to apply cost-effectiveness analysis to health. This is, in part, because it is difficult. Cost and effectiveness data on health interventions are often weak. Costs vary between countries and can rise or fall sharply as a service is expanded. Some groups of interventions are provided jointly, and their costs are shared. Nonetheless, cost-effectiveness analysis is already demonstrating its usefulness as a tool for choosing among possible health interventions in individual countries and for addressing specific health problems such as the spread of AIDS.

Just because a particular intervention is cost-effective does not mean that public funds should be spent on it. Households can buy health care with their own money and, when well informed, may do this better than governments can do it for them. But households also seek value for money, and governments, by making information about cost-effectiveness available, can often help im-

Box 1 Investing in health: key messages of this Report

This Report proposes a three-pronged approach to government policies for improving health.

Foster an environment that enables households to improve health

Household decisions shape health, but these decisions are constrained by the income and education of household members. In addition to promoting overall economic growth, governments can help to improve those decisions if they:

- Pursue economic growth policies that will benefit the poor (including, where necessary, adjustment policies that preserve cost-effective health expenditures)
- Expand investment in schooling, particularly for girls
- Promote the rights and status of women through political and economic empowerment and legal protection against abuse.

Improve government spending on health

The challenge for most governments is to concentrate resources on compensating for market failures and efficiently financing services that will particularly benefit the poor. Several directions for policy respond to this challenge:

- Reduce government expenditures on tertiary facilities, specialist training, and interventions that provide little health gain for the money spent.
- Finance and implement a package of public health interventions to deal with the substantial externalities surrounding infectious disease control, prevention of AIDS, environmental pollution, and behaviors (such as drunk driving) that put others at risk.
- Finance and ensure delivery of a package of essential clinical services. The comprehensiveness and composition of such a package can only be defined by each country, taking into account epidemiological conditions, local preferences, and income. In most countries public finance, or publicly mandated finance, of the essential clinical package would provide a politically acceptable mechanism for distributing both welfare im-

provements and a productive asset—better health—to the poor.

- Improve management of government health services through such measures as decentralization of administrative and budgetary authority and contracting out of services.

Promote diversity and competition

Government finance of public health and of a nationally defined package of essential clinical services would leave the remaining clinical services to be financed privately or by social insurance within the context of a policy framework established by the government. Governments can promote diversity and competition in provision of health services and insurance by adopting policies that:

- Encourage social or private insurance (with regulatory incentives for equitable access and cost containment) for clinical services outside the essential package.
- Encourage suppliers (both public and private) to compete both to deliver clinical services and to provide inputs, such as drugs, to publicly and privately financed health services. Domestic suppliers should not be protected from international competition.
- Generate and disseminate information on provider performance, on essential equipment and drugs, on the costs and effectiveness of interventions, and on the accreditation status of institutions and providers.

Increased scientific knowledge has accounted for much of the dramatic improvement in health that has occurred in this century—by providing information that forms the basis of household and government action and by underpinning the development of preventive, curative, and diagnostic technologies. Investment in continued scientific advance will amplify the effectiveness of each element of the three-pronged approach proposed in this Report. Because the fruits of science benefit all countries, internationally collaborative efforts, of which there are several excellent examples, will often be the right way to proceed.

prove the decisions of private consumers, providers, and insurers.

Government policies for achieving health for all

This Report focuses primarily on the relation between policy choices, both inside and outside the health sector, and health outcomes, especially for the poor. Box 1 summarizes the Report's three key messages for government policy and notes the im-

portance of continued investment in scientific advance.

- Since overall economic growth—particularly poverty-reducing growth—and education are central to good health, governments need to pursue sound macroeconomic policies that emphasize reduction of poverty. They also need to expand basic schooling, especially for girls, because the way in which households, particularly mothers, use information and financial resources to shape their

dietary, fertility, health care, and other life-style choices has a powerful influence on the health of household members.

- Governments in developing countries should spend far less—on average, about 50 percent less—than they now do on less cost-effective interventions and instead double or triple spending on basic public health programs such as immunizations and AIDS prevention and on essential clinical services. A minimum package of essential clinical services would include sick-child care, family planning, prenatal and delivery care, and treatment for tuberculosis and STDs. Low-income countries would have to redirect current public spending for health and increase expenditures (by government, donors, and patients) to meet needs for public health and the minimum package of essential clinical services for their populations; less reallocation would be needed in middle-income countries. Tertiary care and less cost-effective services will continue, but public subsidies to them, if they mainly benefit the wealthy, should be phased out during a transitional period.

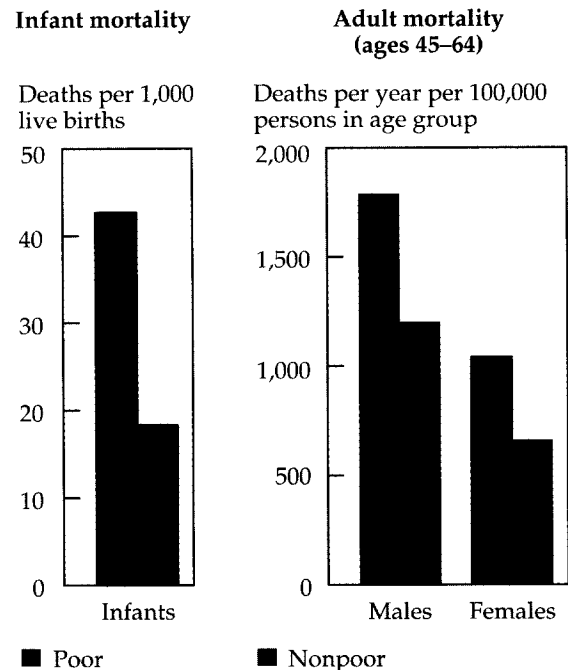
- Because competition can improve quality and drive down costs, governments should foster competition and diversity in the supply of health services and inputs, particularly drugs, supplies, and equipment. This could include, where feasible, private supply of health care services paid for by governments or social insurance. There is also considerable scope for improving the quality and efficiency of government health services through a combination of decentralization, performance-based incentives for managers and clinicians, and related training and development of management systems. Exposing the public sector to competition with private suppliers can help to spur such improvements. Strong government regulation is also crucial, including regulation of privately delivered health services to ensure safety and quality and of private insurance to encourage universal access to coverage and to discourage practices—such as fee-for-service payment to providers reimbursed by a “third-party” insurer—that lead to overuse of services and escalation of costs.

Improving the economic environment for healthy households

Advances in income and education have allowed households almost everywhere to improve their health. In the 1980s, even in countries in which average incomes fell, death rates of children under age 5 declined by almost 30 percent. But the child mortality rate fell more than twice as much in

The poor suffer far higher levels of mortality at all ages than do the rich.

Figure 3 Infant and adult mortality in poor and nonpoor neighborhoods of Porto Alegre, Brazil, 1980



Note: Poor neighborhoods were defined according to specific criteria. They are, broadly, squatter settlements with substandard housing and infrastructure.
Source: Barcellos and others 1986.

countries in which average incomes rose by more than 1 percent a year. Economic policies conducive to sustained growth are thus among the most important measures governments can take to improve their citizens' health.

Of these economic policies, increasing the income of those in poverty is the most efficacious for improving health. The reason is that the poor are most likely to spend additional income in ways that enhance their health: improving their diet, obtaining safe water, and upgrading sanitation and housing. And the poor have the greatest remaining health needs, as Figure 3 illustrates for Porto Alegre, Brazil. Government policies that promote equity and growth together will therefore be better for health than those that promote growth alone.

In the 1980s many countries undertook macro-economic stabilization and adjustment programs

designed to deal with severe economic imbalances and move the countries onto sustainable growth paths. Such adjustment is clearly needed for long-run health gains. But during the transitional period, and especially in the earliest adjustment programs, recession and cuts in public spending slowed improvements in health. This effect was less than originally feared, however—in part because earlier expenditures for improving health and education had enduring effects. As a result of this experience, most countries' adjustment programs today try to rationalize overall government spending while maintaining cost-effective expenditures in health and education. Despite these improvements, much is still to be learned about more efficient ways of carrying out stabilization and adjustment programs while protecting the poor.

Policies to expand schooling are also crucial for promoting health. People who have had more schooling seek and utilize health information more effectively than those with little or no schooling. This means that rapid expansion of educational opportunities—in part by setting a high minimum standard of schooling (say, six full years) for all—is a cost-effective way of improving health. Education of girls and women is particularly beneficial to household health because it is largely women who buy and prepare food, maintain a clean home, care for children and the elderly, and initiate contacts with the health system. Beyond education, government policies that support the rights and economic opportunities of women also contribute to overall household well-being and better health.

Investing in public health and essential clinical services

The health gain per dollar spent varies enormously across the range of interventions currently financed by governments. Redirecting resources from interventions that have high costs per DALY gained to those that cost little could dramatically reduce the burden of disease without increasing expenditures. A limited package of public health measures and essential clinical interventions is a top priority for government finance; some governments may wish, after covering that minimum for everyone, to define their national essential package more broadly.

Public health

Government action in many areas of public health has already had an important payoff. Immuniza-

tions are currently saving an estimated 3 million lives a year. Social marketing of condoms to prevent transmission of human immunodeficiency virus (HIV) has proved highly successful in Uganda, Zaire, and elsewhere. Information on the risks of smoking, and taxes on both tobacco and alcohol, are changing behavior in some countries—although mostly, so far, in the richer countries.

Governments need to expand these efforts and to move forward with other promising public health initiatives. Several activities stand out because they are highly cost-effective: the cost of gaining one DALY can be remarkably low—sometimes less than \$25 and often between \$50 and \$150. Activities in this category include:

- Immunizations
- School-based health services
- Information and selected services for family planning and nutrition
- Programs to reduce tobacco and alcohol consumption
- Regulatory action, information, and limited public investments to improve the household environment
- AIDS prevention.

Intensified government support is required to extend the Expanded Programme on Immunization (EPI), which currently protects about 80 percent of the children in the developing world against six major diseases at a cost of about \$1.4 billion a year. Expanding EPI coverage to 95 percent of all children would have a significant impact on children in poor households, who make up a disproportionately large share of those not yet reached by the EPI. Other vaccines, particularly those for hepatitis B and yellow fever, could be added to the six currently included in the EPI, as could vitamin A and iodine supplements. In most developing countries such an "EPI Plus" cluster of interventions in the first year of life would have the highest cost-effectiveness of any health measure available in the world today.

A second high priority for governments should be to provide inexpensive and highly efficacious medications to treat school-age children afflicted with schistosomiasis, intestinal worm infections, and micronutrient deficiencies. Treatment of these conditions through distribution of medications and micronutrient supplements in schools would greatly improve the health, school attendance, and learning achievement of hundreds of millions of children, at a cost of \$1 to \$2 per child per year. In addition to treatment, schoolchildren can be taught by their teachers or by radio about the hu-

man body and about avoiding risks to health—for example, from smoking or unsafe sex.

Governments need to encourage healthier behaviors on the part of individuals and households by providing information on the benefits of breastfeeding and on how to improve children's diets. Programs in Colombia, Indonesia, and elsewhere show the potential for success. Information on the benefits of family planning and on the availability of family planning services is also critical. Government dissemination of this information can take a number of creative forms, as the effective use of radio drama and folk theater in Kenya and Zimbabwe demonstrates.

Measures to control the use of tobacco, alcohol, and other addictive substances—through information campaigns, taxes, bans on advertising, and, in certain cases, import controls—can help substantially to reduce chronic lung disease, heart disease, cancer, and injuries. Unless smoking behavior changes, three decades from now premature deaths caused by tobacco in the developing world will exceed the expected deaths from AIDS, tuberculosis, and complications of childbirth combined.

Governments must do more to promote a healthier environment, especially for the poor, who face greatly increased health risks from poor sanitation, insufficient and unsafe water supplies, poor personal and food hygiene, inadequate garbage disposal, indoor air pollution, and crowded and inferior housing. Collectively, these risks are associated with nearly 30 percent of the global burden of disease. To help the poor improve their household environments, governments can provide a regulatory and administrative framework within which efficient and accountable providers (often in the private sector) have an incentive to offer households the services they want and are willing to pay for, including water supply, sanitation, garbage collection, clean-burning stoves, and housing. The government has a vital role in disseminating information about hygienic practices. It can also improve the use of public resources by eliminating widespread subsidies for water and sanitation that benefit the middle class. Government legislation and regulations to increase security of land tenure for the poor would encourage low-income families to invest more in safer, healthier housing.

A special challenge for concerted public health action is to reduce the spread of AIDS. The AIDS epidemic has already become a dominant public health concern in many countries. Although HIV, the virus that causes AIDS, has only recently be-

gun to spread through human populations, it has so far caused 2 million deaths and infected about 13 million individuals. Some parts of the developing world are already heavily infected: in Sub-Saharan Africa an average of one in forty adults has the virus, and in certain cities the rate is one in three. In Thailand one adult in fifty is infected. More than 90 percent of the infected individuals are in their economically most productive years, ages 15–40. They will be developing AIDS and dying over the next decade. Projections of the future course of the epidemic are gloomy: conservative estimates from WHO are that by 2000, 26 million individuals will be HIV-infected and 1.8 million a year will die of AIDS. By destroying individuals' immune systems, HIV will also vastly worsen the spread of other diseases, especially tuberculosis. In highly affected areas demand for AIDS treatment will overwhelm capacity for clinical treatment and cause a deterioration of care for other illnesses.

What governments need to do is clear: intervene early, before a major epidemic gets under way. Countries as diverse as Bangladesh, Ghana, and Indonesia share the preconditions for rapid transmission of HIV—substantial numbers of prostitutes and high rates of prevalence of other STDs, such as syphilis, gonorrhea, and chancroid, which facilitate the spread of the AIDS virus. Strong public action is required to reduce HIV transmission. Particularly important are efforts targeted to high-risk groups: information to promote change in sexual behavior; distribution of condoms; and treatment for other STDs. Early reduction in HIV transmission by high-risk individuals is very cost-effective, but later in an AIDS epidemic the cost-effectiveness of interventions declines substantially. Current expenditures on AIDS prevention in developing countries—totaling less than \$200 million a year—are woefully inadequate. Five to ten times this level of spending is needed to deal with the emerging epidemic.

Essential clinical services

The components of a package of essential clinical services of high cost-effectiveness will vary from country to country, depending on local health needs and the level of income. At a minimum, the package should include five groups of interventions each of which addresses very large disease burdens. The five groups are:

- Services to ensure pregnancy-related (prenatal, childbirth, and postpartum) care; strength-

ened efforts could prevent most of the almost half-million maternal deaths that occur each year in developing countries.

- Family planning services; improved access to these services could save as many as 850,000 children from dying every year and eliminate as many as 100,000 of the maternal deaths that occur annually.

- Tuberculosis control, mainly through drug therapy, to combat a disease that kills more than 2 million people annually, making it the leading cause of death among adults.

- Control of STDs, which account for more than 250 million new cases of debilitating and sometimes fatal illness each year.

- Care for the common serious illnesses of young children—diarrheal disease, acute respiratory infection, measles, malaria, and acute malnutrition—which account for nearly 7 million child deaths annually.

These clinical interventions are all highly cost-effective—often costing substantially less than \$50 per DALY gained.

A minimal package of essential clinical services would also include some treatment for minor infection and trauma and, for health problems that cannot be fully resolved with existing resources, advice and alleviation of pain. The provision of hospital-based emergency care other than the interventions mentioned above would depend on day-to-day capacity and availability of resources. This emergency care includes, for example, treatment of most fractures, as well as appendectomies. Depending on resource availability and social values, some countries may define their essential clinical package to include a much

broader range of interventions than this minimum. At modest increases in spending, relatively cost-effective measures for the treatment of some common noncommunicable conditions could be included. Examples are low-cost protocols for treatment of heart disease using aspirin and anti-hypertensive drugs; treatment for cervical cancer; drug treatment of some psychoses; and removal of cataracts.

Many health services have such low cost-effectiveness that governments will need to consider excluding them from the essential clinical package. In low-income countries these might include heart surgery; treatment (other than pain relief) of highly fatal cancers of the lung, liver, and stomach; expensive drug therapies for HIV infection; and intensive care for severely premature babies. It is hard to justify using government funds for these medical treatments at the same time that much more cost-effective services which benefit mainly the poor are not adequately financed.

Widespread adoption of an essential clinical package would have a tremendous positive impact on the health of people in developing countries. If 80 percent of the population were reached, 24 percent of the current burden of disease in low-income countries and 11 percent of that in middle-income countries could be averted (Table 2). The estimated impact of implementing the minimum clinical services is more than twice that for the public health package outlined above; when combined with the public health package, the share of current illness that could be eliminated rises to perhaps 32 percent for low-income countries and 15 percent for middle-income countries. This reduction in disease is equivalent, in terms of DALYs

Table 2 Estimated costs and health benefits of the minimum package of public health and essential clinical services in low- and middle-income countries, 1990

Group	Cost (dollars per capita per year)	Cost as a percentage of income per capita	Approximate reduction in burden of disease (percent)
<i>Low-income countries</i> (Income per capita = \$350)			
Public health	4.2	1.2	8
Essential clinical services ^a	7.8	2.2	24
Total	12.0	3.4	32
<i>Middle-income countries</i> (Income per capita = \$2,500)			
Public health	6.8	0.3	4
Essential clinical services ^a	14.7	0.6	11
Total	21.5	0.9	15

a. The estimated costs and benefits are for a *minimum* essential package of clinical services, as defined in the text. Many countries may wish, if they have the resources, to define their essential clinical package more broadly.
Source: World Bank calculations.

gained, to saving the lives of more than 9 million infants each year.

Paying for the package

The most sophisticated facility required to deliver the minimum elements of the essential clinical package is a district hospital. Providing services in lower-level facilities allows costs to be contained at modest levels for minimal versions of the essential clinical package. The cost is about \$8 per person each year in low-income countries and \$15 in middle-income countries. The cost differences are the result of distinct demographic structures, epidemiological conditions, and labor costs in the two settings. When the cost of the public health interventions described above is added, total costs rise to \$12 per capita in low-income countries and \$22 per capita in middle-income countries.

Adoption of the package in all developing countries would require a quadrupling of expenditures on public health, from \$5 billion at present to \$20 billion a year, and an increase from about \$20 billion to \$40 billion in spending on essential clinical services. In the poorest countries governments typically spend about \$6 per person for health and total health expenditures are about \$14 per person. There, paying for an essential package will require a combination of increased expenditures by governments, donor agencies, and patients and some reorientation of current public spending for health. In middle-income countries, where public spending for health averages \$62 per person, the \$22 cost of the package is financially feasible if the political commitment exists for shifting existing resources away from discretionary services with lower cost-effectiveness toward public health programs and essential clinical care. These major changes cannot be made overnight, but it is important to start and complete them as swiftly as possible, before interest groups and bureaucratic inertia undermine reform.

A critical question in designing an essential clinical package is the extent of government financing. Should governments pay for everyone, or only for the poor? The main problem with universal government financing is that it subsidizes the wealthy, who could afford to pay for their own services, and thus leaves fewer government resources for the poor. A policy requiring those who can pay all or part of their own costs to do so may make sense on equity grounds, but it also has disadvantages. Often, the administrative costs of targeting are high, and exclusion of wealthy and middle-income

groups can lead to erosion of political support for the essential package and to decreased funding and lower quality of care. Furthermore, problems of cost escalation and access to insurance on the part of high-risk groups can complicate private finance. For these reasons, in most member countries of the Organization for Economic Cooperation and Development (OECD), governments finance (or mandate the financing of) comprehensively defined essential packages for virtually all their citizens.

In low-income countries, where current public spending for health is less than the cost of an essential package, some degree of targeting is inevitable. If the wealthy are already opting out of government-financed services because of the higher quality and convenience of privately financed services, targeting is fairly easy. Community-financing schemes, whereby patients at local health centers and pharmacies pay modest fees, are another option that can help both to improve the quality of care and, when fees are retained and managed locally, to sustain services. A large number of countries in Africa have had some early success with community financing as part of the Bamako Initiative led by UNICEF and WHO. Nonetheless, experience to date suggests that introduction of user fees at levels that do not discourage the poor is likely to be more useful for improving technical efficiency (for example, by facilitating drug supply) than for raising substantial revenues on a nationwide basis.

Reforming health systems: promoting diversity and competition

Ensuring basic public health services and essential clinical care while the rest of the health system becomes self-financed will require substantial health system reforms and reallocations of public spending. Only by reducing or eliminating spending on discretionary clinical services can governments concentrate on ensuring cost-effective clinical care for the poor. One way to do so is by charging fees to affluent patients who use government hospitals and services. In Chile, Kenya, Lesotho, and other countries governments are increasing user fees for the wealthy and for those covered by insurance and are strengthening the legal and administrative systems for billing patients and collecting revenues.

Promoting self-financed insurance, thus eliminating large and inequitable subsidies to the more affluent groups who are covered by insurance,

would also help to free government funds for public health programs and essential clinical care. Subsidies in the form of tax relief for contributions to private insurance are equal to nearly a fifth of total government spending for health in South Africa. In Latin America subsidies to the social insurance systems are widespread and include tax relief, direct transfers to cover the operating deficits of social security health funds, and matching government funds for employee payroll contributions. Where these subsidies benefit only the better-off in society, they need to be scaled back.

Reforms entail shifting new government spending for health away from specialized personnel, equipment, and facilities at the apex of health systems and "down the pyramid" toward the broad base of widely accessible care in community facilities and health centers. Very few cost-effective interventions depend on sophisticated hospitals and specialized physicians—all the services contained in the minimum essential clinical package proposed in this Report can be provided by health centers and district hospitals. Yet specialized facilities everywhere absorb a large amount of public resources, a problem that has frequently been exacerbated by donor investments in tertiary care facilities. In the 1980s Papua New Guinea, to correct overconcentration of resources on higher-level facilities, limited public spending on hospitals to 40 percent of the recurrent budget of the Ministry of Health—well below the level in most developing countries.

Governments need to use more effective policies for financing training (including use of national service mechanisms) to help meet the need for primary care providers, particularly nurses and midwives, and for public health, health policy, and management personnel. At the same time, governments should limit or eliminate subsidies for specialist training. Increased government support for health information systems and operations research would help to guide public policies for health. Estimates of the national burden of disease along the lines of the global burden of disease methodology used in this Report, and local information on the cost-effectiveness of different interventions, would enable governments to establish health priorities.

In every developing country decisive steps are needed to correct the pervasive inefficiency of clinical health programs and facilities and especially of government services. Clinics and outreach programs operate poorly because of shortages of drugs, transport, and maintenance. Hospitals

keep patients longer than necessary and are poorly organized and managed. Countries pay too much for drugs of low efficacy, and drugs and supplies are stolen or go to waste in government warehouses and hospitals.

In the short term, reforms in pharmaceutical usage offer the greatest gains in efficiency. Governments that have introduced competition in the procurement of drugs have typically achieved savings of 40 to 60 percent. Governments can also develop national essential drug lists, consisting of a limited number of inexpensive drugs that address the important health problems of the population. Many countries have such lists, but not all use them to guide the selection and procurement of drugs for the public sector. New treatment protocols and alternative uses of facilities can also raise efficiency. Outpatient surgery can replace some procedures customarily performed on an inpatient basis, at considerable savings.

In the long run, decentralization can help to increase efficiency when there is adequate capacity and accountability at lower levels of the national health system. Some countries, such as Botswana and Ghana, have delegated a wide range of management responsibilities to regional and district-level offices of the ministry of health; others, including Chile and Poland, have devolved authority and resources to local government agencies. Their experience provides evidence that success is possible—but also that hasty and unplanned decentralization, sometimes purely in response to political pressures, can create new problems.

Greater reliance on the private sector to deliver clinical services, both those that are included by a country in its essential package and those that are discretionary, can help raise efficiency. The private sector already serves a large and diverse clientele in developing countries and often delivers services of higher quality without the long lines and inadequate supplies frequently found in government facilities. In many countries private doctors and pharmacies face unnecessary legal and administrative barriers, and these need to be removed. But the tendency for profit-making providers to overprescribe drugs, procedures, and diagnostics needs to be countered; encouraging the for-profit sector to move away from fee-for-service to prepaid coverage (through, for example, encouraging health maintenance organizations) is one feasible approach.

Governments could also subsidize private health care providers who deliver essential clinical

services to the poor. This is already beginning to happen and needs to go further. In many African countries, including Malawi, Uganda, and Zambia, governments subsidize the operating expenditures of church hospitals and clinics in rural areas and the training of their health personnel. In Bangladesh, Kenya, Thailand, and other countries, governments, with assistance from donors, are supporting the work of traditional birth attendants in safe pregnancy and delivery care and of traditional healers in controlling infectious diseases such as malaria, diarrhea, and AIDS.

Regulation is an essential element of government efforts to encourage private health care suppliers. In most countries, governments have an important role to play in ensuring the quality of private sector health care—through accreditation of hospitals and laboratories, licensing of medical schools and physicians, regulation of drugs, and reviews of medical practices. Some countries in which the government's ability to regulate is particularly weak could explore self-regulation for health care providers, while building up government capacity. In Brazil experiments with self-regulation for local hospital associations and medical ethics boards are now under way.

Government regulation of insurance is equally important. In some countries part of the population is denied insurance because of selection bias under private voluntary insurance. In the United States millions of people with high health risks—and thus high need for health insurance—are unable to obtain affordable coverage. Some types of insurance schemes also seem to contribute to pushing up health care costs; this is particularly true of third-party systems and of systems that reimburse hospitals and physicians item by item for any and all services performed. In both the Republic of Korea, which relies on universal social insurance, and the United States, which uses mostly private insurance, health care already absorbs an unusually high share of GNP—and costs are still rising. During the 1980s, for example, health expenditures in Korea increased from 3.7 to almost 7 percent of GNP, in large part because of expansion of third-party insurance coverage combined with fee-for-service provider compensation.

To eliminate selection bias and expand insurance coverage, governments can require insurers to pool risks across large numbers of people. To control costs, governments have a number of options for limiting payments to health providers. One approach is to encourage prepayment of a fixed amount for each person, as is now done in

private health maintenance organizations and in the British National Health Service. Another is for insurers jointly to negotiate uniform fees with doctors and hospitals, as is done in Japan's social insurance system and Zimbabwe's private medical aid insurance system; or insurers themselves can set fixed payments for specified medical diagnoses, as in Brazil. Yet a third approach, which has been tested on a limited scale in the United States, is "managed competition." This scheme pursues the three objectives of cost-effective health spending, universal insurance coverage, and cost containment simultaneously through tightly regulated competition among companies that provide a specified package of health care for a fixed annual fee. Each of these approaches has proved workable, but each also has its limits and disadvantages. There are no simple answers for health policymakers.

An agenda for action

Adoption of the main policy recommendations of this Report by developing country governments would enormously improve the health status of their people, especially poor households, and would also help to control health care spending (Table 3). Millions of lives and billions of dollars could be saved. Implementation of the public health and essential clinical care packages, pursuit of economic growth strategies that reduce poverty, and increased investment in schooling for girls would have the largest payoffs in averting deaths and reducing disability. Scaling back public spending for tertiary care facilities, specialist training, and clinical care with lower cost-effectiveness would help to increase the effectiveness of health spending. So would encouragement of competition in delivery of health services and regulation of insurance and of provider payment systems.

These recommendations will facilitate progress toward the goal contained in the declaration from the historic 1978 Alma-Ata conference: "The attainment of all peoples of the world by the year 2000 of a level of health that will permit them to lead a socially and economically productive life." Continued momentum toward this goal was provided by the 1990 World Summit for Children. Almost 150 countries have now signed commitments to specific goals for their countries to improve the health of children and women (Box 2). These goals include reduction of child mortality rates by one-third (or to 70 per 1,000 births, whichever would be less) over the course of the decade of the 1990s,

Table 3 Contribution of policy change to objectives for the health sector

Government objectives and policies	Contribution to goals		
	Improving health outcomes	Reaching the disadvantaged	Containing costs
<i>Foster an enabling environment for households to improve health</i>			
Pursue economic growth policies that benefit the poor	Very favorable	Favorable	No impact expected
Expand investment in education, particularly for females	Very favorable	Favorable	No impact expected
Promote the rights and status of women through political and economic empowerment and legal protection against abuse	Somewhat favorable	Somewhat favorable	No impact expected
<i>Improve government investments in health</i>			
Reduce government expenditures for tertiary care facilities, specialist training, and discretionary services	No impact expected	Somewhat favorable	Favorable
Finance and ensure delivery of a public health package, including AIDS prevention	Favorable	Somewhat favorable	Somewhat favorable
Finance and ensure delivery of essential clinical services, at least to the poor	Favorable	Somewhat favorable	Somewhat favorable
Improve the management of public health services	Somewhat favorable	Somewhat favorable	Favorable
<i>Facilitate involvement by the private sector</i>			
Encourage private finance and provision of insurance (with incentives to contain costs) for all discretionary clinical services	Somewhat favorable	No impact expected	Favorable
Encourage private sector delivery of clinical services (including those that are publicly financed)	Somewhat favorable	Somewhat favorable	Favorable
Provide information on performance and cost	Somewhat favorable	No impact expected	Somewhat favorable

■ Very favorable ■ Favorable ■ Somewhat favorable □ No impact expected

reduction of maternal mortality rates by half, eradication of polio, and major reductions in morbidity and mortality from several other diseases. Commitments to specific improvements in education, nutrition, water supply, and sanitation were also made. These commitments underscore the political potential of action agendas for improving health.

The relevance of the main recommendations of this Report varies from one setting to another. In low-income countries renewed emphasis on basic schooling for girls, strengthening of public health programs, and support for expanded public fi-

nancing of essential clinical services should be at the top of the policy agenda. In most middle-income countries these policies are still germane, but reducing public subsidies for insurance and discretionary care would also yield large benefits and should therefore be a key element of policy change. In the formerly socialist economies there are two particularly crucial policy areas—improving the management of government health services and developing sustainable health-financing systems that maintain universal coverage while encouraging competition among cost-conscious suppliers.

Box 2 The World Summit for Children

The declaration and plan of action adopted at the World Summit for Children, held in New York in 1990, incorporate a politically salient agenda for health. The summit focused, in particular, on the needs of children and women but was set in the broader context of human and community goals. The seventy-one heads of state who attended and the seventy-seven more who subsequently signed the declaration committed their countries to developing national programs of action (NPAs) for achieving these goals. To date, about eighty-five countries have drawn up NPAs, and another sixty are in the process of preparing them.

NPAs typically cover, among other concerns, primary health care, family planning, safe water, environmental sanitation, nutrition, and basic education. Because of their concentration on the welfare of children, NPAs are able to transcend political differences. They offer a means of mobilizing the whole of civil society—neighborhood and civic associations, religious groups and professional bodies, businesses, voluntary agencies, organized labor, and universities—in the cause of investment for health.

NPAs are being integrated into national development planning. They set forth measurable, attainable goals—to be met by 2000 or earlier—that are adapted to the realities of the country. By quantifying the resources required to achieve these goals, NPAs help to identify the changes that are needed in national bud-

gets and external aid if priorities for human development are to be met. The health goals of the summit's plan of action include:

- The eradication of polio by 2000
- The elimination of neonatal tetanus by 1995
- A 90 percent reduction in measles cases and a 95 percent reduction in measles deaths
- Achievement (by 2000) and maintenance of at least 90 percent immunization coverage of one-year-old children, as well as universal tetanus immunization for women of childbearing age
- A halving of child deaths caused by diarrhea and a one-quarter reduction in the incidence of diarrheal disease
- A reduction by one-third in child deaths caused by acute respiratory infections
- Virtual elimination of vitamin A deficiency and iodine deficiency disorders
- A reduction in the incidence of low birth weight (2.5 kilograms or less) to no more than 10 percent
- A one-third reduction from 1990 levels in iron deficiency anemia among women
- Access for all women to prenatal care, trained attendants during childbirth, and referral for high-risk pregnancies and obstetric emergencies.

The agenda for action of the children's health summit is broadly consistent with the messages of this Report.

At first glance, it might appear that adoption of this Report's major recommendations will be easy. To reach most people living in the developing world with the minimum package of cost-effective public health and essential clinical services, about half of current government expenditures on other, more discretionary care would have to be redirected. But in reality, change will be difficult, since an array of interest groups may stand to lose—from suppliers of medical services to rich beneficiaries of public subsidies to protected drug companies. Many of the changes will take years to implement because they mean a major redirection of public resources and require the development of new institutional capabilities.

A number of developing countries have already shown in recent years that broad reforms in the health sector are possible when there is sufficient political will and when changes to the health system are designed and implemented by capable planners and managers. Zimbabwe has imposed a decade-long moratorium on new investments in

central hospitals and has concentrated on improving health centers and other district-level infrastructure. Tunisia has converted eleven large government hospitals to semiautonomous institutions with strong incentives for improved performance. During the 1980s Chile delegated responsibility for its entire primary clinical care system to local governments and fostered more public and private competition in health service delivery and in insurance. Costa Rica and Korea achieved universal health coverage through social insurance.

The international community can do more to support health policy reforms. In 1990 donors disbursed about \$4.8 billion of assistance for health, or about 2.5 percent of all health spending in developing countries. The share of total development aid for health declined slightly in the 1980s, from 7 to 6 percent, despite widespread calls for increased investment in human resource development, including health. As an immediate first step, donors need to restore this share to its former level. A more substantial increase can be easily

justified, given the importance of health in reducing poverty and the large gap between current and needed spending for public health programs and minimum clinical services. An additional \$2 billion a year from donors would meet about one-quarter of the costs of stabilizing the AIDS epidemic (\$500 million) and one-sixth of the extra resources needed to provide the public health and clinical care package for low-income countries (\$1.5 billion of the \$10 billion required).

Increased external assistance for health research that focuses on the major health problems of developing countries—such as the search for new antimalarial drugs and new or improved vaccines—could have a very high payoff and would build on the comparative advantage of donor countries in conducting scientific research. That most health research benefits many countries further justifies donor support, particularly through such effective internationally collaborative mechanisms as the Special Programme for Research and Training in Tropical Diseases.

Donors and developing country governments can also do much to improve the effectiveness of aid for health. This is especially important in low-income Africa, where aid already accounts for an average 20 percent of health spending—and for over half in Burundi, Chad, Guinea-Bissau, Mozambique, and Tanzania. Even in other developing regions, where aid amounts to 2 percent or less of health expenditures, better targeting and management of this assistance can catalyze policy change.

Redirecting donor money from hospitals and specialist training to public health programs and

essential clinical care—especially for tuberculosis control, the EPI Plus program, AIDS prevention, and reduction of tobacco consumption—would be a significant contribution to policy reform. So would support for capacity-building. Countries that are willing to undertake major changes in health policy should be strong candidates for increased aid, including donor financing of recurrent costs. An increasing number of donors, among them the World Bank, are now supporting this kind of broad sectoral reform. Stronger donor coordination, especially at the level of individual developing country clients, would improve the positive impact of aid on health, as shown by the experience of Bangladesh, Senegal, and Zimbabwe.

The benefits to the developing world from adopting sound policies for health are enormous. There is great potential for change during the closing years of this decade as more countries encourage broad political participation and public accountability, as levels of education and knowledge improve, and as understanding of human biology, public health, and health care systems increases. If the right policy choices are made, the payoff will be high. The momentum of past reductions in the burden of infectious disease in developing countries can be maintained and accelerated. The AIDS epidemic can be slowed or reversed. The emerging problems of noncommunicable disease in aging populations can be managed without rapid increases in health expenditures. In the end, this will translate into longer, healthier, and more productive lives for people around the world, especially the more than 1 billion now living in poverty.

Box 1.3 Measuring the burden of disease

Most assessments of the relative importance of different diseases are based on how many deaths they cause. This convention has certain merits: death is an unambiguous event, and the statistical systems of many countries routinely produce the data required. There are, however, many diseases or conditions that are not fatal but that are responsible for great loss of healthy life: examples are chronic depression and paralysis caused by polio. These conditions are common, can last a long time, and frequently lead to significant demands on health systems.

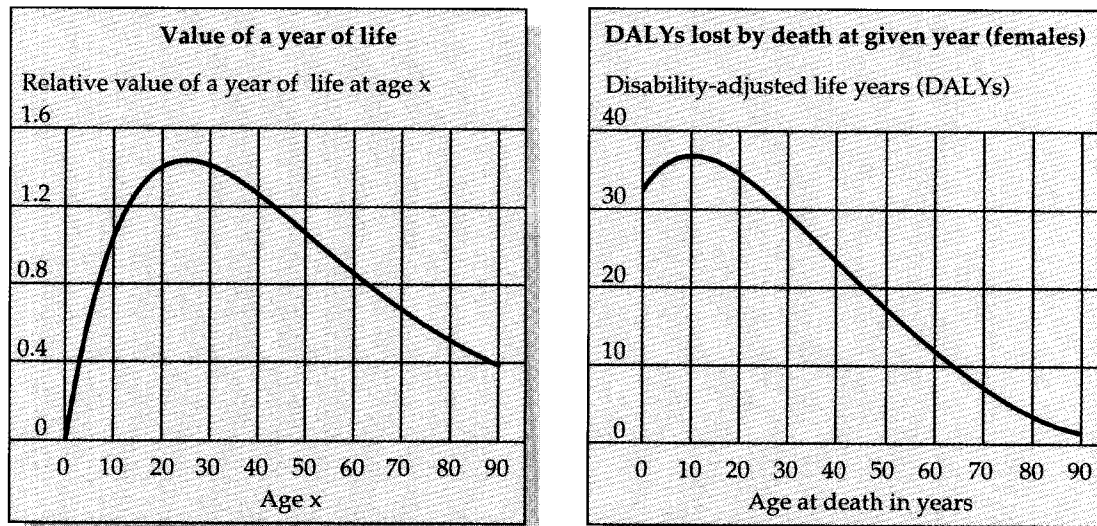
To quantify the full loss of healthy life, the World Bank and the World Health Organization undertook a joint exercise for this Report. Diseases were classified into 109 categories on the basis of the *International Classification of Diseases* (ninth revision). These categories cover all possible causes of death and about 95 percent of the possible causes of disability. Using the recorded cause of death where available, and expert judgment when records were not available, the study assigned all deaths in 1990 to these categories by age, sex, and demographic region. For each death, the number of years of life lost was defined as the difference between the actual age at death and the expectation of life at that age in a low-mortality population. For disability, the incidence of cases by age, sex, and demographic region was estimated on the basis of community surveys or, failing that, expert opinion; the number of years of

healthy life lost was then obtained by multiplying the expected duration of the condition (to remission or to death) by a severity weight that measured the severity of the disability in comparison with loss of life. Diseases were grouped into six classes of severity of disability; for example, class 2, which includes most cases of leprosy and half the cases of pelvic inflammatory disease, was given a severity weight of 0.22, and class 4, which includes 30 percent of cases of dementia and 50 percent of those of blindness, was assigned a severity weight of 0.6. The death and disability losses were then combined, and allowance was made for a discount rate of 3 percent (so that future years of healthy life were valued at progressively lower levels) and for age weights (so that years of life lost at different ages were given different relative values). The value for each year of life lost, shown in the left-hand panel of Box figure 1.3, rises steeply from zero at birth to a peak at age 25 and then declines gradually with increasing age. These age weights reflect a consensus judgment, but other patterns could be used—for example, uniform age weights, with each year of life having the same value, which would increase the relative importance of childhood diseases.

The combination of discounting and age weights produces the pattern of DALYs (disability-adjusted life years) lost by a death at each age. As the right-hand panel of Box figure 1.3 shows, the death of a newborn

(Box continues on following page.)

Box figure 1.3 Age patterns of age weights and DALY losses



Source: World Bank data.

Box table 1.3 Distribution of DALY loss by cause and demographic region, 1990
(percent)

Cause	World	Sub-Saharan Africa	India	China	Other Asia and islands	Latin America and the Caribbean	Middle Eastern crescent	Formerly socialist economies of Europe	Established market economies
Population (millions)	5,267	510	850	1,134	683	444	503	346	798
Communicable diseases	45.8	71.3	50.5	25.3	48.5	42.2	51.0	8.6	9.7
Tuberculosis	3.4	4.7	3.7	2.9	5.1	2.5	2.8	0.6	0.2
STDs and HIV	3.8	8.8	2.7	1.7	1.5	6.6	0.7	1.2	3.4
Diarrhea	7.3	10.4	9.6	2.1	8.3	5.7	10.7	0.4	0.3
Vaccine-preventable childhood infections	5.0	9.6	6.7	0.9	4.5	1.6	6.0	0.1	0.1
Malaria	2.6	10.8	0.3	*	1.4	0.4	0.2	*	*
Worm infections	1.8	1.8	0.9	3.4	3.4	2.5	0.4	*	*
Respiratory infections	9.0	10.8	10.9	6.4	11.1	6.2	11.5	2.6	2.6
Maternal causes	2.2	2.7	2.7	1.2	2.5	1.7	2.9	0.8	0.6
Perinatal causes	7.3	7.1	9.1	5.2	7.4	9.1	10.9	2.4	2.2
Other	3.5	4.6	4.0	1.4	3.3	5.8	4.9	0.6	0.5
Noncommunicable diseases	42.2	19.4	40.4	58.0	40.1	42.8	36.0	74.8	78.4
Cancer	5.8	1.5	4.1	9.2	4.4	5.2	3.4	14.8	19.1
Nutritional deficiencies	3.9	2.8	6.2	3.3	4.6	4.6	3.7	1.4	1.7
Neuropsychiatric disease	6.8	3.3	6.1	8.0	7.0	8.0	5.6	11.1	15.0
Cerebrovascular disease	3.2	1.5	2.1	6.3	2.1	2.6	2.4	8.9	5.3
Ischemic heart disease	3.1	0.4	2.8	2.1	3.5	2.7	1.8	13.7	10.0
Pulmonary obstruction	1.3	0.2	0.6	5.5	0.5	0.7	0.5	1.6	1.7
Other	18.0	9.7	18.5	23.6	17.9	19.1	18.7	23.4	25.6
Injuries	11.9	9.3	9.1	16.7	11.3	15.0	13.0	16.6	11.9
Motor vehicle	2.3	1.3	1.1	2.3	2.3	5.7	3.3	3.7	3.5
Intentional	3.7	4.2	1.2	5.1	3.2	4.3	5.2	4.8	4.0
Other	5.9	3.9	6.8	9.3	5.8	5.0	4.6	8.1	4.3
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Millions of DALYs	1,362	293	292	201	177	103	144	58	94
Equivalent infant deaths (millions)	42.0	9.0	9.0	6.2	5.5	3.2	4.4	1.8	2.9
DALYs per 1,000 population	259	575	344	178	260	233	286	168	117

*Less than 0.05 percent.

Note: DALY, disability-adjusted life year; STD, sexually transmitted disease; HIV, human immunodeficiency virus.

Source: World Bank data.

baby girl represents a loss of 32.5 DALYs; a female death at age 30 means the loss of 29 DALYs; and a female death at age 60 represents 12 lost DALYs. (Values are slightly lower for males.) The sum across all ages, conditions, and regions is referred to as the global burden of disease (GBD). More details on the GBD are presented in Appendix B.

The global burden measures the present value of the future stream of disability-free life lost as a result of death, disease, or injury in 1990. It is thus based on events that occurred in 1990 but includes the loss of disability-free life in future years. This Report expresses the burden in three distinct ways: as the number of DALYs, as a percentage of some larger aggregate (such as the percentage of total loss attributable to a specific disease), and in relation to population size in 1990. This last measure calls for careful interpretation because all future loss is expressed in relation to the current population, and the measure can easily exceed

one year per person. A baby who died in 1990 contributed about thirty-two years (the discounted value of about eighty years of expected life) to the burden but counted as one in the population. To take an extreme case, if the entire population of the world were to be killed in one year, the burden per 1,000 population in that year would exceed 20,000 DALYs. There is therefore no absolute scale with which the GBD per 1,000 population can be compared; the only comparisons that make sense are those between categories—of regions, risk factors, disease groups, or sex. Box table 1.3 shows the GBD by cause and demographic region.

The approach used to compute the GBD can also be used to track improvements in a nation's health over time by following changes in the national burden of disease. Preliminary plans for initial national assessments have been developed for Costa Rica, South Africa, and Andhra Pradesh State in India.

Note to Table A.3 Population structure and dynamics

Population in 1990 by country and the percentages for under age 15 and for age 60 and over were taken from Bos and others 1992. Regional totals were obtained by addition. The regional population totals provide the basis for the regional projections carried out for this Report for the period 1950 to 2050. The basis for the mortality assumptions for these projections varies by region. For the established market economies and the formerly socialist economies of Europe vital registration data from about 1990 were used; future mortality trends were then adapted to agree with Bos and others 1992 for 2050. For the past, vital registration data and official life tables were used in combination with child mortality estimates averaged across the countries of each region. For China mortality in 1990 was obtained by adjusting upward the deaths by age recorded in the 1990 census, using an adjustment factor of 1.20 for males and 1.25 for females; these adjustment factors were derived from a comparison of the deaths by age and sex with the population distribution in 1982 and 1990. For India the 1988 Sample Registration System life table was taken for 1990 without adjustment. For Latin America and the Caribbean 1990 mortality was based on deaths and population by age as available in the Pan American Health Organization (PAHO) data base for 1990. For Sub-Saharan Africa, Other Asia and islands, and the Middle Eastern crescent mortality estimates were based on country-specific estimates of child mortality, combined with indicators from a small number of accurate life tables of the relationship between child and adult mortality. Fertility estimates by region for the period 1950 to 1990 were determined by the 1990 age distributions and the mortality assumptions. Fertility estimates for the period 1990 to 2050 were taken as weighted averages of the country-specific values used by Bos and others 1992. Estimates of migration were obtained indirectly from United Nations, *World Population Prospects 1990*. Regional summaries for various columns of Table A.3—total fertility rate, total live births, life expectancy, median age at death, child mortality rate, and adult mortality rate by sex—are taken directly from the regional projections.

Country-specific values for total fertility rate and total live births in 1990 are taken from projection data bases in Bos and others 1992. Mortality indicators are based on the child mortality estimates for 1960, 1975, and 1990, which, for developing countries, are largely based on the special exercise described below.

Life expectancy at birth, $e(0)$, is the number of years that a person born in a given year could expect to live, given the age-specific mortality rates for that year. *Life expectancy* in 1960 and 1990 and *male and female adult mortality rates* for 1990 were derived from the child mortality estimates for that year, combined with assumptions about the relationship between child and adult mortality based on the country-specific projec-

tions in Bos and others 1992. The adult mortality rate for a given sex is the probability of dying between ages 15 and 60, expressed per 1,000. *Median age at death* is the age below which half of all deaths occur in a year.

The *perinatal mortality rate* is the number per 1,000 births of perinatal deaths (late fetal deaths, occurring at twenty-eight weeks of gestation or thereafter, and early neonatal deaths, occurring within the first seven days of life). Estimates of perinatal mortality were derived from various data sources. Vital registration data were used for most of the established market economies and for Argentina, Chile, China, Singapore, and Uruguay. Vital registration data for the republics of the former U.S.S.R. were corrected for underreporting of perinatal deaths by using a regression model of perinatal mortality on postneonatal mortality based on a data series extending over about forty-five years (1945-91) from forty countries with complete vital registration. The remaining estimates drew on community- and hospital-based studies at the district or other subnational level that were expanded to the national level using either percentage of the population living in urban areas in 1990 or percentage of births attended by trained health staff. Vital statistics for the established market economies and the historical data base were obtained from the U.S. National Center for Health Statistics (NCHS).

The *child mortality rate* is defined as the probability of dying by exact age 5. Estimates for the period 1960-1990 were obtained from a special exercise carried out jointly for the *World Development Report* and the United Nations Children's Fund (UNICEF), the results of which will be published as UNICEF, *The Progress of Nations 1993*. (The methodology is described in Hill and Yazbeck, background paper.) The sources of information are those given in United Nations, *Child Mortality since the 1960s* (1992), augmented by recently available census and survey data. For each observation of child mortality, there is a corresponding observation of the date to which the measure refers. Point estimates of child mortality were obtained by fitting a line to the observations using weighted least squares, the independent variables being years (to account for trends) and the weights being based on consensus judgment about the relative robustness of estimates derived from different types of data. In order to focus on rates of change, the dependent variable used is the logarithm of the observed child mortality rates. For estimates beyond the range of the observations, extrapolation is used; all estimates based on extrapolation are shown in italics. For countries not included in *Child Mortality since the 1960s*, estimates of child mortality by period have been taken from United Nations, *Mortality of Children under Age Five* (1988). For these countries, point estimates for calendar years have been obtained by averaging estimates for adjacent five-year periods; thus, for example, child mortality for 1960 for Ethiopia is obtained as the average of the estimated values for 1955-60 and 1960-65.

Table A.3 Population structure and dynamics

Demographic region and economy	Population and fertility					General mortality			Age-specific mortality rates					
	Population, 1990 (millions)	Under 15 years old, 1990 (percent)	60 years and over, 1990 (percent)	Total fertility rate, 1990	Total live births per year, 1990 (hundreds of thousands)	Life expectancy at birth		Median age at death, 1990	Perinatal mortality rate, 1990	Child mortality rate			Adult mortality rate, 1990 (ages 15-59)	
						1960	1990			1960	1975	1990	Male	Female
Sub-Saharan Africa	510 t	46 w	5 w	6.4 w	251.8 t	43 w	52 w	5 w	68 w	251 w	212 w	175 w	381 w	322 w
Mozambique	16	44	5	6.4	7.2	39	43	2	75	280	280	280	490	421
Tanzania	25	47	5	6.6	11.7	42	49	5	71	242	202	165	379	335
Ethiopia	51	47	5	7.5	26.5	37	48	4	87	294	262	197	404	329
Uganda	16	49	5	7.3	8.5	44	47	4	85	224	173	185	424	367
Burundi	5	46	5	6.8	2.7	40	47	11	87	255	209	180	424	367
Chad	6	42	6	6.0	2.5	35	47	7	74	326	271	212	445	358
Madagascar	12	46	5	6.3	5.3	42	51	11	76	250	200	170	389	333
Sierra Leone	4	43	5	6.5	1.9	34	38	2	72	391	375	360	503	436
Malawi	9	47	4	7.6	4.6	35	47	4	83	361	313	201	426	369
Rwanda	7	48	4	8.3	3.9	45	44	3	86	210	223	222	453	395
Mali	8	47	5	7.0	4.3	33	48	4	80	413	321	200	417	361
Burkina Faso	9	46	5	6.5	4.2	35	49	4	85	318	254	159	429	352
Niger	8	47	4	7.1	3.9	35	38	3	79	320	320	320	513	454
Nigeria	96	47	4	6.0	42.5	47	49	7	71	204	198	191	406	354
Kenya	24	50	4	6.6	11.1	46	59	15	77	203	139	83	315	259
Benin	5	48	5	6.4	2.2	35	50	6	69	307	228	170	387	316
Central Africa Rep.	3	42	5	5.8	1.3	35	55	15	64	332	209	132	346	288
Ghana	15	47	5	6.3	6.6	45	52	7	71	213	169	170	344	282
Togo	4	48	5	6.7	1.8	39	54	7	75	264	193	143	325	268
Guinea	6	46	4	6.5	2.7	35	44	2	76	347	297	268	452	395
Zimbabwe	10	45	4	5.0	3.6	52	62	26	55	159	120	58	269	216
Côte d'Ivoire	12	47	4	6.7	5.4	40	57	10	68	260	194	90	332	277
Senegal	7	47	4	6.5	3.4	35	50	15	73	303	265	156	397	340
Cameroon	12	46	6	5.9	4.8	40	57	16	68	265	194	125	316	256
South Africa	36	38	6	4.3	12.1	48	62	41	50	192	141	91	278	209
Somalia	8	46	5	6.8	3.8	36	45	4	70	294	262	214	443	390
Zaire	37	46	4	6.3	17.0	37	49	6	68	286	223	190	387	319
Sudan	25	46	5	6.3	11.2	46	57	13	78	203	152	104	267	234
Zambia	8	49	4	6.7	4.0	45	47	11	63	213	167	190	422	354
Angola	10	45	5	6.5	4.7	35	46	3	75	346	281	214	434	381
India	850	37	7	4.0	258.1	47	58	37	64	235	195	127	272	229
China	1,134	27	9	2.5	251.3	43	69	64	25	210	85	43	201	150
Other Asia and islands	683 t	37 w	6 w	3.3 w	188.7 t	50 w	62 w	42 w	49 w	182 w	135 w	97 w	243 w	177 w
Nepal	19	42	5	5.7	7.6	44	56	12	90	279	202	135	312	243
Cambodia	8	35	5	4.6	3.3	45	50	30	85	218	239	174	347	274
Bangladesh	107	43	5	4.6	37.2	46	56	12	75	251	236	137	295	244
Lao PDR	4	44	5	6.7	2.0	44	50	8	85	232	209	171	345	280
Sri Lanka	17	32	8	2.4	3.5	58	72	73	19	140	69	22	158	92
Indonesia	178	36	6	3.1	45.9	46	59	47	40	214	151	111	278	212
Philippines	61	40	5	3.6	17.8	59	64	49	27	103	75	62	234	172
Papua New Guinea	4	41	5	5.1	1.4	47	52	22	43	204	185	169	374	327
Thailand	56	33	6	2.4	12.0	52	68	71	25	149	85	36	242	163
Malaysia	18	38	6	3.8	5.5	58	71	63	25	106	54	20	177	120
Korea, Rep.	43	26	8	1.8	6.9	53	72	74	10	133	29	10	149	67
Hong Kong	6	21	13	1.5	0.7	64	78	77	8	53	17	7	91	44
Singapore	3	24	8	1.9	0.5	65	74	76	8	48	16	8	135	64
Myanmar	42	37	6	3.9	12.7	43	61	41	50	234	153	101	256	187
Viet Nam	66	40	7	3.9	20.4	57	67	50	40	105	68	46	180	118
Korea, Dem. People's Rep.	22	28	7	2.4	4.7	53	70	71	20	133	55	31	179	84
Latin America and the Caribbean	444 t	36 w	7 w	3.3 w	124.6 t	54 w	70 w	55 w	33 w	161 w	104 w	60 w	228 w	163 w
Nicaragua	4	46	4	5.4	1.5	50	62	13	35	191	149	106	283	264
Haiti	6	40	6	4.8	2.3	47	54	18	43	221	208	156	413	406
Honduras	5	45	5	5.3	2.0	49	67	23	39	203	126	62	220	162
Bolivia	7	43	5	4.9	2.6	43	60	13	37	251	205	125	330	269
Guatemala	9	45	5	5.5	3.6	49	64	23	40	205	152	84	287	227
Dominican Rep.	7	37	6	3.3	2.0	56	68	49	35	149	114	56	212	147
Ecuador	10	39	6	3.8	3.1	53	70	57	37	174	120	42	218	157
Peru	22	38	6	3.8	6.6	45	65	47	40	233	157	73	272	221
El Salvador	5	44	6	4.3	1.7	51	69	32	39	188	146	52	318	217
Colombia	32	35	6	2.7	7.9	58	73	66	33	132	88	21	200	109
Paraguay	4	41	5	4.7	1.5	64	70	42	37	92	70	37	261	210
Chile	13	31	9	2.6	2.9	55	73	69	14	155	68	20	214	112
Venezuela	20	38	6	3.6	5.7	67	72	62	26	78	59	26	196	105
Argentina	32	30	13	2.8	6.5	67	72	72	28	73	56	26	168	90
Uruguay	3	26	16	2.3	0.5	71	74	73	17	55	58	23	194	101
Brazil	150	35	7	3.3	40.4	52	66	57	35	179	110	69	250	182
Mexico	86	37	6	3.3	23.8	56	70	60	30	148	95	38	212	164
Puerto Rico	4	26	14	2.3	0.6	67	76	75	18	70	27	15	155	77
Cuba	11	23	12	1.9	1.9	71	76	77	17	49	34	12	134	95

Demographic region and economy	Population and fertility					General mortality			Age-specific mortality rates					
	Population, 1990 (millions)	Under 15 years old, 1990 (percent)	60 years and over, 1990 (percent)	Total fertility rate, 1990	Total live births per year, 1990 (hundreds of thousands)	Life expectancy at birth		Median age at death, 1990	Perinatal mortality rate, 1990	Child mortality rate			Adult mortality rate, 1990 (ages 15-59)	
						1960	1990			1960	1975	1990	Male	Female
Middle Eastern crescent	503 t	41 w	6 w	5.0 w	195.8 t	44 w	61 w	24 w	46 w	242 w	174 w	111 w	228 w	174 w
Pakistan	112	44	5	5.9	47.1	49	56	7	65	222	163	139	296	263
Yemen, Rep.	11	49	5	7.7	6.1	33	49	4	60	378	270	183	334	327
Egypt	52	39	6	5.6	16.2	40	64	38	58	256	212	56	214	158
Morocco	25	41	6	4.6	8.7	45	62	41	45	215	174	71	214	183
Tajikistan	5	45	6	5.0	2.0	..	65	22	37	..	115	75	190	133
Jordan	3	44	4	5.5	1.3	54	69	35	40	145	85	34	138	93
Syrian Arab Rep.	12	48	4	6.5	5.5	47	66	23	45	199	98	44	157	121
Uzbekistan	21	42	6	4.0	6.6	..	67	37	33	..	67	60	225	135
Tunisia	8	38	6	3.7	2.3	41	67	58	40	245	140	45	166	136
Kyrgyzstan	4	38	9	3.7	1.3	..	68	64	31	..	63	53	268	131
Georgia	5	24	16	2.1	0.9	..	72	71	24	..	39	28	218	94
Azerbaijan	7	33	9	2.7	1.7	..	69	66	30	..	69	52	239	106
Turkmenistan	4	41	6	4.1	1.2	..	64	48	41	..	101	93	270	155
Turkey	56	35	7	3.5	15.9	47	65	52	45	217	172	94	175	107
Algeria	25	44	5	5.2	9.1	43	65	47	40	242	174	82	135	105
Armenia	3	30	11	2.4	0.6	..	72	67	25	..	43	32	195	100
Iran	56	44	5	6.3	25.1	42	63	18	56	234	164	64	174	124
Kazakhstan	17	32	10	2.8	3.7	..	68	65	27	..	48	39	291	131
Saudi Arabia	15	46	4	7.0	6.4	38	64	18	40	292	166	81	175	138
Israel	5	31	12	2.9	1.1	72	76	76	11	38	26	10	110	72
Afghanistan	20	45	4	6.9	9.8	34	40	2	75	358	314	307	421	421
Iraq	19	47	4	6.2	8.0	52	63	24	52	163	106	72	194	129
Libya	5	46	4	6.7	2.0	39	62	16	35	269	146	82	191	144
Formerly socialist economies of Europe (FSE)	346 t	23 w	17 w	2.2 w	52.9 t	66 w	72 w	72 w	19 w	68 w	36 w	22 w	281 w	112 w
Romania	23	24	16	2.2	3.7	63	70	71	12	82	43	31	233	119
Poland	38	25	15	2.2	5.9	65	71	72	15	70	29	20	263	102
Bulgaria	9	20	20	1.9	1.1	67	73	73	11	62	29	21	217	97
Moldova	4	32	11	2.9	0.8	..	69	68	24	..	51	32	271	153
Ukraine	52	21	19	2.1	7.5	..	72	73	22	..	25	22	270	107
Czechoslovakia ^a	16	23	17	2.0	2.2	70	72	73	10	32	23	13	243	98
Lithuania	4	30	16	2.0	0.6	..	72	73	20	..	23	18	276	108
Hungary	11	20	19	1.8	1.3	68	71	73	15	57	33	20	305	133
Belarus	10	23	18	2.2	1.6	..	73	73	21	..	22	18	272	64
Russian Federation	148	24	17	2.3	23.5	..	71	71	22	..	33	27	304	110
Albania	3	33	8	3.0	0.8	51	70	67	45	164	71	36	250	110
Yugoslavia ^b	22	23	15	2.1	2.8	59	71	71	16	113	47	28	195	94
Established market economies (EME)	798 t	19 w	18 w	1.7 w	104.0 t	70 w	76 w	75 w	9 w	36 w	21 w	11 w	147 w	73 w
Portugal	10	21	18	1.6	1.3	60	75	75	13	108	49	13	169	82
Greece	10	19	20	1.5	1.1	68	76	76	13	50	29	13	133	71
Ireland	4	27	15	2.2	0.6	70	74	75	10	35	20	10	186	98
New Zealand	3	23	15	2.0	0.6	71	75	75	7	26	18	11	159	86
Spain	39	20	19	1.5	4.4	68	76	75	10	56	22	10	148	79
United Kingdom	57	19	21	1.9	7.9	71	76	77	8	27	18	9	156	87
Australia	17	22	15	1.9	2.5	71	77	76	10	24	16	9	148	74
Italy	58	16	16	1.3	5.7	68	77	77	12	56	25	11	128	72
Netherlands	15	18	18	1.6	1.9	73	77	77	10	21	12	9	141	72
Belgium	10	18	21	1.7	1.2	70	76	77	10	38	19	11	156	75
Austria	8	18	20	1.5	0.9	69	76	77	8	47	24	10	162	76
France	56	20	19	1.8	7.6	70	77	78	9	33	16	9	159	66
Canada	27	21	16	1.8	3.9	71	77	76	8	33	16	9	146	65
United States	250	22	17	1.9	38.6	70	76	76	10	31	19	11	157	75
Germany	79	16	20	1.6	9.2	69	76	78	7	43	22	9	159	76
Denmark	5	17	20	1.6	0.6	72	75	77	9	25	12	10	162	90
Finland	5	20	18	1.8	0.7	63	75	76	8	27	11	8	168	86
Norway	4	19	21	1.9	0.6	73	77	78	8	22	12	10	140	68
Sweden	9	17	23	2.0	1.2	73	78	78	7	19	10	8	135	71
Japan	124	18	17	1.6	13.5	68	79	78	6	37	11	6	120	63
Switzerland	7	17	20	1.7	0.8	71	78	78	8	25	12	9	136	63
FSE and EME	1,144 t	20 w	18 w	1.9 w	156.8 t	69 w	75 w	74 w	12 w	46 w	25 w	15 w	188 w	86 w
Demographically developing group	4,123 t	36 w	7 w	3.8 w	1,270.3 t	46 w	63 w	39 w	45 w	226 w	152 w	106 w	250 w	199 w
World	5,267 t	32 w	9 w	3.4 w	1,427.1 t	53 w	65 w	55 w	40 w	195 w	135 w	96 w	234 w	169 w

Note: In this appendix the demographically developing group includes the Sub-Saharan Africa, India, China, Other Asia and islands, Latin America and the Caribbean, and Middle Eastern crescent regions. Regional totals and averages include relevant information for less populous countries as listed in Table A.10, except for perinatal mortality.

a. Refers to former Czechoslovakia because disaggregated data are not yet available.

b. Refers to former Socialist Federal Republic of Yugoslavia because disaggregated data are not yet available.

Table A.9 Health expenditure and total flows from external assistance

Demographic region and economy	Total health expenditure (official exchange rate dollars)		Health expenditures as a percentage of GDP			Development assistance for health		
	Millions, 1990	Per capita, 1990	Total, 1990	Public sector, 1990	Private sector, 1990	Total aid flows in dollars, 1990 (millions) ^a	Aid flows per capita, 1990	Aid flows as a percentage of total health expenditure, 1990
Sub-Saharan Africa	12,080 <i>t</i>	24 <i>w</i>	4.5 <i>w</i>	2.5 <i>w</i>	2.0 <i>w</i>	1,251 <i>t</i>	2.5 <i>w</i>	10.4 <i>w</i>
Mozambique	85	5	5.9	4.4	1.5	45	2.9	52.9
Tanzania	109	4	4.7	3.2	1.5	53	2.1	48.3
Ethiopia	229	4	3.8	2.3	1.5	43	0.8	18.8
Uganda	95	6	3.4	1.6	1.8	46	2.8	48.4
Burundi	36	7	3.3	1.7	1.6	15	2.8	42.7
Chad	76	13	6.3	4.7	1.6	33	5.8	43.0
Madagascar	79	7	2.6	1.3	1.3	17	1.5	21.5
Sierra Leone	22	5	2.4	1.7	0.8	7	1.7	33.0
Malawi	93	11	5.0	2.9	2.1	22	2.5	23.3
Rwanda	74	10	3.5	1.9	1.6	29	4.1	39.5
Mali	130	15	5.2	2.8	2.4	36	4.3	27.7
Burkina Faso	219	24	8.5	7.0	1.5	42	4.7	19.4
Niger	126	16	5.0	3.4	1.6	43	5.6	34.0
Nigeria	906	9	2.7	1.2	1.6	58	0.6	6.4
Kenya	375	16	4.3	2.7	1.6	84	3.5	22.3
Benin	79	17	4.3	2.8	1.6	33	7.0	41.8
Central Africa Rep.	55	18	4.2	2.6	1.6	20	6.5	35.8
Ghana	204	14	3.5	1.7	1.8	29	1.9	14.2
Togo	67	18	4.1	2.5	1.6	14	3.9	21.0
Guinea	106	19	3.9	2.3	1.6	20	3.5	23.8
Zimbabwe	416	42	6.2	3.2	3.0	42	4.2	10.0
Côte d'Ivoire	332	28	3.3	1.7	1.6	11	0.9	3.4
Senegal	214	29	3.7	2.3	1.4	36	4.9	16.9
Cameroon	286	24	2.6	1.0	1.6	38	3.3	13.4
South Africa	5,671	158	5.6	3.2	2.4	2	..	..
Somalia	60	8	1.5	0.9	0.6	27	3.5	45.6
Zaire	179	5	2.4	0.8	1.5	48	1.3	26.7
Sudan	300	12	3.3	0.5	2.8	39	1.5	13.0
Zambia	117	14	3.2	2.2	1.0	6	0.7	4.9
Angola	..	..	..	..	..	28	2.8	..
India	17,740	21	6.0	1.3	4.7	286	0.3	1.6
China	12,969	11	3.5	2.1	1.4	77	0.1	0.6
Other Asia and islands	41,752 <i>t</i>	61 <i>w</i>	4.5 <i>w</i>	1.8 <i>w</i>	2.7 <i>w</i>	594 <i>t</i>	0.9 <i>w</i>	1.4 <i>w</i>
Nepal	141	7	4.5	2.2	2.3	33	1.8	23.6
Cambodia	..	..	..	..	..	..	..	..
Bangladesh	715	7	3.2	1.4	1.8	128	1.2	17.9
Lao PDR	22	5	2.5	1.0	1.5	5	1.2	22.7
Sri Lanka	305	18	3.7	1.8	1.9	26	1.5	7.4
Indonesia	2,148	12	2.0	0.7	1.3	159	0.9	7.4
Philippines	883	14	2.0	1.0	1.0	69	1.1	7.8
Papua New Guinea	142	36	4.4	2.8	1.6	7	1.8	4.9
Thailand	4,061	73	5.0	1.1	3.9	36	0.7	0.9
Malaysia	1,259	67	3.0	1.3	1.7	3	0.1	0.2
Korea, Rep.	16,130	377	6.6	2.7	3.9	32	..	0.2
Hong Kong	4,060	699	5.7	1.1	4.6	..	..	..
Singapore	658	219	1.9	1.1	0.8	1	0.2	0.1
Myanmar	..	..	..	..	..	12	0.3	..
Viet Nam	157	2	2.1	1.1	1.0	25	0.4	15.9
Korea, Dem. People's Rep	..	..	..	..	..	..	..	..
Latin America and the Caribbean	46,660 <i>t</i>	105 <i>w</i>	4.0 <i>w</i>	2.4 <i>w</i>	1.6 <i>w</i>	591 <i>t</i>	1.3 <i>w</i>	1.3 <i>w</i>
Nicaragua	133	35	8.6	6.7	1.9	27	6.6	20.0
Haiti	193	30	7.0	3.2	3.8	33	5.1	17.0
Honduras	134	26	4.5	2.9	1.6	20	4.0	15.1
Bolivia	181	25	4.0	2.4	1.6	37	5.1	20.3
Guatemala	283	31	3.7	2.1	1.6	32	3.4	11.1
Dominican Rep.	263	37	3.7	2.1	1.6	11	1.5	4.1
Ecuador	441	43	4.1	2.6	1.6	31	3.0	7.0
Peru	1,065	49	3.2	1.9	1.3	29	1.4	2.7
El Salvador	317	61	5.9	2.6	3.3	44	8.5	13.9
Colombia	1,604	50	4.0	1.8	2.2	26	0.8	1.6
Paraguay	160	37	2.8	1.2	1.6	10	2.4	6.4
Chile	1,315	100	4.7	3.4	1.4	10	0.7	0.7
Venezuela	1,747	89	3.6	2.0	1.6	2	0.1	0.1
Argentina	4,441	138	4.2	2.5	1.7	11	0.3	0.2
Uruguay	383	124	4.6	2.5	2.1	5	1.7	1.4
Brazil	19,871	132	4.2	2.8	1.4	84	0.6	0.4
Mexico	7,648	89	3.2	1.6	1.6	65	0.8	0.9
Puerto Rico	..	..	..	..	..	..	..	..
Cuba	..	..	..	..	..	3	0.3	..

Demographic region and economy	Total health expenditure (official exchange rate dollars)		Health expenditures as a percentage of GDP			Development assistance for health		
	Millions, 1990	Per capita, 1990	Total, 1990	Public sector, 1990	Private sector, 1990	Total aid flows in dollars, 1990 (millions) ^a	Aid flows per capita, 1990	Aid flows as a percentage of total health expenditure, 1990
Middle Eastern crescent	38,961 t	77 w	4.1 w	2.4 w	1.7 w	453 t	0.9 w	1.2 w
Pakistan	1,394	12	3.4	1.8	1.6	76	0.7	5.4
Yemen, Rep.	217	19	3.2	1.5	1.7	25	2.2	11.6
Egypt	921	18	2.6	1.0	1.6	111	2.1	12.1
Morocco	661	26	2.6	0.9	1.6	20	0.8	3.0
Tajikistan	532	100	6.0	4.4	1.6	..	..	..
Jordan	149	48	3.8	1.8	2.0	18	5.9	12.4
Syrian Arab Rep.	283	23	2.1	0.4	1.6	20	1.6	7.1
Uzbekistan	2,388	116	5.9	4.3	1.6	..	..	..
Tunisia	614	76	4.9	3.3	1.6	18	2.3	3.0
Kyrgyzstan	517	118	5.0	3.3	1.6	..	..	..
Georgia	830	152	4.5	2.8	1.7	..	..	..
Azerbaijan	785	98	4.3	2.6	1.7	..	..	..
Turkmenistan	459	125	5.0	3.3	1.7	2	0.5	0.4
Turkey	4,281	76	4.0	1.5	2.5	23	0.4	0.5
Algeria	4,159	166	7.0	5.4	1.6	2	0.1	0.1
Armenia	506	152	4.2	2.5	1.7	..	..	..
Iran	3,024	54	2.6	1.5	1.1	2	..	..
Kazakhstan	2,572	154	4.4	2.8	1.7	..	..	..
Saudi Arabia	4,784	322	4.8	3.1	1.7	1	0.1	..
Israel	2,301	494	4.2	2.1	2.1	3	0.6	0.1
Afghanistan	..	..	..	..	..	53	2.6	..
Iraq	..	..	..	..	..	4	0.2	..
Libya	..	..	..	..	..	..	..	..
Formerly socialist economies of Europe (FSE)	49,143 t	142 w	3.6 w	2.5 w	1.0 w	..	..	..
Romania	1,455	63	3.9	2.4	1.5	..	..	..
Poland	3,157	83	5.1	4.1	1.0	..	..	..
Bulgaria	1,154	131	5.4	4.4	1.0	..	..	..
Moldova	623	143	3.9	2.9	1.0	..	..	..
Ukraine	6,803	131	3.3	2.3	1.0	..	..	..
Czechoslovakia ^b	2,711	173	5.9	5.0	0.9	..	..	..
Lithuania	594	159	3.6	2.6	1.0	..	..	..
Hungary	1,958	185	6.0	5.0	0.9	..	..	..
Belarus	1,613	157	3.2	2.2	1.0	..	..	..
Russian Federation	23,527	157	3.0	2.0	1.0	..	..	..
Albania	84	26	4.0	3.4	0.6	..	..	..
Yugoslavia ^c	4,512	205	3.0	4.0	1.0	..	..	..
Established market economies (EME)	1,483,196 t	1,860 w	9.2 w	5.6 w	3.5 w	..	..	..
Portugal	3,970	383	7.0	4.3	2.7	..	..	..
Greece	3,609	358	5.5	4.2	1.3	..	..	..
Ireland	3,068	876	7.1	5.8	1.4	..	..	..
New Zealand	3,150	925	7.2	5.9	1.3	..	..	..
Spain	32,375	831	6.6	5.2	1.4	..	..	..
United Kingdom	59,623	1,039	6.1	5.2	0.9	..	..	..
Australia	22,736	1,331	7.7	5.4	2.3	..	..	..
Italy	82,214	1,426	7.5	5.8	1.7	..	..	..
Netherlands	22,423	1,500	7.9	5.7	2.2	..	..	..
Belgium	14,428	1,449	7.5	6.2	1.3	..	..	..
Austria	13,193	1,711	8.3	5.5	2.8	..	..	..
France	105,467	1,869	8.9	6.6	2.3	..	..	..
Canada	51,594	1,945	9.1	6.8	2.4	..	..	..
United States	690,667	2,763	12.7	5.6	7.0	..	..	..
Germany	120,072	1,511	8.0	5.8	2.2	..	..	..
Denmark	8,160	1,588	6.3	5.3	1.0	..	..	..
Finland	10,200	2,046	7.4	6.2	1.2	..	..	..
Norway	7,782	1,835	7.4	7.0	0.3	..	..	..
Sweden	20,055	2,343	8.8	7.9	0.9	..	..	..
Japan	189,930	1,538	6.5	4.8	1.6	..	..	..
Switzerland	16,916	2,520	7.5	5.1	2.4	..	..	..
FSE and EME	1,532,340 t	1,340 w	8.7 w	5.4 w	3.4 w	..	..	..
Demographically developing group	170,115 t	41 w	4.7 w	2.3 w	2.5 w	3,252 t	0.8 w	1.9 w
World	1,702,455 t	323 w	8.0 w	4.9 w	3.2 w	..	..	..

Note: Regional totals and averages include relevant information for less populous countries, as listed in Table A.10. Technical notes to this table appear in *World Development Report 1993*. a. Aid flows are official development assistance and include only a small portion of private flows, that is NGO assistance. b. Refers to former Czechoslovakia because disaggregated data are not yet available. c. Refers to former Socialist Federal Republic of Yugoslavia because disaggregated data are not yet available.

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The World Bank

This executive summary reproduces the overview and several other elements of *World Development Report 1993*.

Because good health increases the economic productivity of individuals and the economic growth rate of countries, investing in health is one means of accelerating development. More important, good health is a goal in itself.

During the past forty years life expectancy in the developing world has risen and child mortality has decreased, sometimes dramatically. But progress is only one side of the picture. The toll from childhood and tropical diseases remains high even as new problems—including AIDS and the diseases of aging populations—appear on the scene. And all countries are struggling with the problems of controlling health expenditures and making health care accessible to the broad population.

The sixteenth annual *World Development Report* examines the controversial questions surrounding health care and health policy. Its findings are based in large part on innovative research, including estimation of the global burden of disease and the cost-effectiveness of interventions. These assessments can help in setting priorities for health spending.

The Report advocates a threefold approach to health policy for governments in developing countries and in the formerly socialist countries:

- Foster an economic environment that will enable households to improve their own health. Policies for economic growth that ensure income gains for the poor are essential. So, too, is expanded investment in schooling, particularly for girls.
- Redirect government spending away from specialized care and toward such low-cost and highly effective activities as immunization, programs to combat micronutrient deficiencies, and control and treatment of infectious diseases. By adopting the packages of public health measures and essential clinical care described in the Report, developing countries could reduce their burden of disease by 25 percent.
- Encourage greater diversity and competition in the provision of health services by decentralizing government services, promoting competitive procurement practices, fostering greater involvement by nongovernmental and other private organizations, and regulating insurance markets.

These reforms could translate into longer, healthier, and more productive lives for people around the world, and especially for the more than 1 billion poor.

As in previous editions, the Report includes the World Development Indicators, which give comprehensive, current data on social and economic development in more than 200 countries and territories. The Indicators are also available on diskette for use with personal computers. Special appendices to the Report provide health statistics and estimates of the global burden of disease.