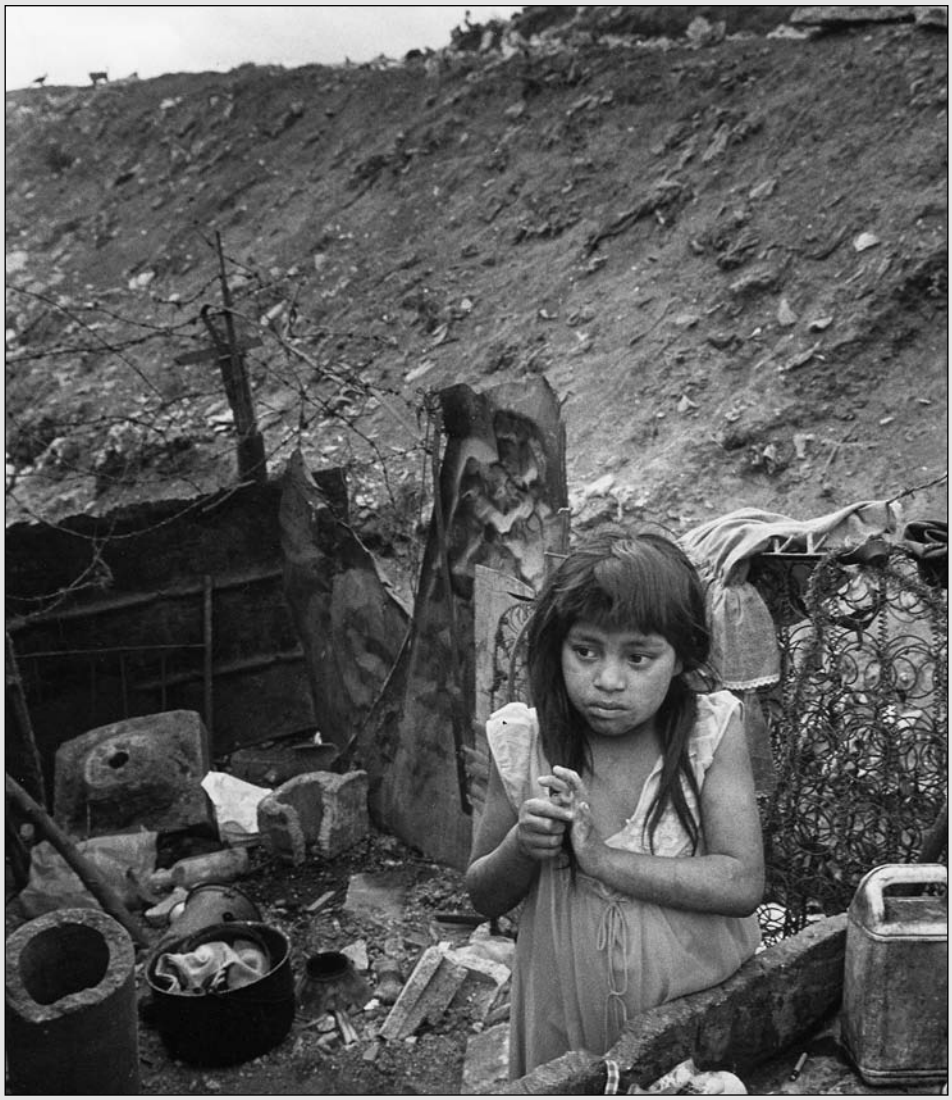
CHAPTER 4



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Illness in the Developing Nations

For almost 20 years, Paul Farmer, an American doctor and anthropologist, has worked among Haiti's rural poor. One of his patients is Jean Dubuisson, who

> *lives in a small village in Haiti's Central Plateau, where he farms a tiny plot of land. He shares a two-room hut with his wife, Marie, and their three surviving children. All his life, recounts Jean, he's "known nothing but trouble." His parents lost their land [when] the Péligre hydroelectric dam [was built and flooded their village]—a loss that plunged their large family into misery. Long before he became ill, Jean and Marie were having a hard time feeding their own children: two of them died before their fifth birthdays, and that was before the cost of living became so intolerable.*
>
> *And so it was a bad day when, some time in 1990, Jean began coughing. For a couple of weeks, he simply ignored his persistent hack, which was followed by an intermittent fever. There was no clinic or dispensary in his home village, and the costs of going to the closest clinic . . . are prohibitive enough to keep men like Jean shivering on the dirt floors of their huts. But then he began having night sweats. Night sweats are bad under any conditions, but they are particularly burdensome when you have only one sheet and often sleep in your clothes. (Farmer, 1999: 187–188)*

Although Jean and Marie both recognized that he needed to seek medical care, doing so was unaffordable. Over the next few months, however, Jean's health continued to decline and his weight to drop. Even more frightening, in December 1990 Jean began to cough up blood, which, given how common tuberculosis is in Haiti, they easily recognized as a symptom of the disease. At that point, Jean agreed to go to a clinic:

> *At the clinic, he paid $2 for multivitamins and the following advice: eat well, drink clean water, sleep in an open room and away from others, and*

go to a hospital. Jean and Marie recounted this counsel without a hint of sarcasm, but they nonetheless evinced a keen appreciation of its total lack of relevance. In order to follow these instructions, the family would have been forced to sell off its chickens and its pig, and perhaps even what little land they had left. They hesitated, understandably.

Two months later, however, a second, massive episode of [coughing up blood] sent them to a church-affiliated hospital [some distance away, where Jean] was charged $4 per day for his bed; at the time, the per capita income in rural Haiti was about $200 a year. When the hospital's staff wrote prescriptions for him, he was required to pay for each medication before it was administered. Thus . . . he actually received less than half of the medicine prescribed. . . . [Jean] discharged himself from the hospital when the family ran out of money and livestock. (Farmer, 1999: 188–189)

Some months later, Jean learned of a nonprofit clinic Farmer had founded in a nearby village, and sought care there. As Farmer describes,

Jean was cured of his tuberculosis, but this cure, in many respects, came too late. Although he is now free of active disease, his left lung was almost completely destroyed . . . forever compromising his ability to feed his family—a precarious enough enterprise in contemporary Haiti, even for the hardy. (Farmer, 1999: 197)

As Jean and Marie's story suggests, the sources and patterns of illness and health care in poorer countries differ dramatically from those found in more affluent countries. We begin this chapter by comparing some of these differences and then focus on health problems in the poorer countries.

Disease Patterns Around the World

In making international comparisons, politicians, social scientists, medical researchers, and others typically divide the world into two broad groups, the **industrialized nations** and the **developing nations.** Essentially, this division reflects the economic status of the various nations. The industrialized nations are primarily defined by their relatively high gross national income (GNI) per capita compared with developing nations. In addition, the industrialized nations are characterized by diverse economies made up of many different industries, whereas the developing nations have far simpler economies, in some cases still relying heavily on a few agricultural products such as rubber or bananas. Because of these economic differences, the developing nations as a group have higher infant and maternal mortality, lower life expectancies, and a greater burden of infectious and parasitic diseases than do the industrialized nations. Table 4.1 shows life expectancies for various developing and industrialized nations.

Table 4.1 ***Life Expectancy at Birth***

Country	Life Expectancy	Country	Life Expectancy
Japan	82	Philippines	70
France	79	Egypt	68
Singapore	79	Bolivia	63
Costa Rica	79	India	62
United States	77	Haiti	51
Cuba	76	Somalia	47
Mexico	75	Ethiopia	46
Thailand	71	Zimbabwe	41
China	71	Sierra Leone	35

Source: Population Reference Bureau (2004).

Although dividing the globe into industrialized versus developing nations is a useful analytic tool, it is important to remember that development level is a scale, not a dichotomy. So, for example, the most rapidly developing nations like Mexico and Thailand have many complex industries as well as traditional agricultural crops and enjoy infant mortality rates and life expectancies approaching those found in the United States and Europe. In addition, although infectious and parasitic diseases remain more common in the rapidly developing nations than in the industrialized nations, chronic diseases are now the most common sources of mortality in both sets of nations (Murray and Lopez, 1996; World Health Organization, 2005b). In contrast, in thirty-five of the *least developed* nations, life expectancy remains less than 50 years and infectious and parasitic diseases still claim most lives (Population Reference Bureau, 2004). Table 4.2 compares the patterns of disease in developing and industrialized nations.

This division between developing and industrialized nations also should not keep us from recognizing that social conditions and, hence, health patterns vary from community to community and from social group to social group within each nation. Thus, as noted in Chapter 3, conditions in Harlem in some ways resemble those in Bangladesh, whereas conditions in wealthy sections of Bangkok resemble those in wealthy sections of U.S. cities. Within the developing nations, the income gap—and consequently the "health gap"—between rich and poor has increased in the last two decades. These growing gaps in income and health largely stem from "structural adjustment" policies adopted by the International Monetary Fund. These structural

Table 4.2 ***Percentage of Deaths by Causes, Industrialized and Developing Nations, 2002***

Disease	Developing Nations (%)	Industrialized Nations (%)
Infectious and parasitic disease	29	6
Circulatory disease (e.g., heart problems)	28	38
Cancers	11	27
Respiratory disease	7	6
Infant and maternal mortality	6	0.4
All other and unknown	19	22.6
Total	100	100

Source: World Health Organization, 2005.

adjustment policies have required developing nations to cut back social programs such as food subsidies and health care for the poor in exchange for economic aid (Kolko, 1999; Peabody, 1996).

Finally, although the terms *developing* and *industrialized* nations imply linear progression from one status to the other, this is not necessarily the case. For example, economic and health conditions worsened in Eastern Europe following the collapse of the Soviet Union and in parts of Africa due to the AIDS epidemic.

With these caveats, in the remainder of this chapter we will explore the sources and nature of disease in the developing nations. Keep in mind, though, that *diseases respect no national borders.* Because of **globalization,** diseases and disease-causing conditions spread rapidly from developing to industrialized nations and vice versa. Researchers have proven that air pollution from Asia—caused by deforestation, overgrazing, and the use of toxic chemicals in agriculture and manufacturing—is now affecting air quality in the western United States (Polakovic, 2002). This pollution increases risks of heart attacks, respiratory failure, and asthma in both continents. Conversely, most used electronics equipment collected in the United States for recycling is shipped to Asia, where the recycling process poisons water supplies with acids, heavy metals (such as lead), and other toxic products (Markoff, 2002).

Because only an imaginary line divides the United States and Mexico—two countries that, at least along their borders, share the same water, air, and, to a large extent, economies—U.S. citizens need to be especially concerned about health conditions in Mexico. For example, only one-third of the sewage generated by the more than 1 million people living in Juarez,

Table 4.3 ***Gross National Income per Capita by Life Expectancy***

GNI PER CAPITA*	LIFE EXPECTANCY
Less developed countries (average per capita GNI=US $3,850)	65 years
More developed countries (average per capita GNI=US $23,690)	76 years

*Figures are given in "international dollars," in which $1 equals the amount of goods and services a person could buy in the United States with one dollar.

Source: Population Reference Bureau (2004).

Mexico, is appropriately treated, and thousands of people living in the neighboring city of El Paso, Texas, lack sanitary septic systems (Schmidt, 2000; Skolnick, 1995). As a result, from both sides of the border human wastes drain into the Rio Grande, which provides water for drinking and for agriculture in these two cities and in downstream communities, including Laredo and Brownsville, Texas. This untreated sewage has made gastrointestinal disease a leading cause of infant mortality in both Juarez and El Paso. Diseases like cholera or hepatitis also could easily take root in these areas and spread into the interiors of both countries. Thus, as this example suggests, those who live in the industrialized nations have a vested interest in understanding health and illness in the developing nations.

Sources of Disease in the Developing Nations

Poverty, Malnutrition, and Disease

The primary cause of low life expectancies in the developing nations is poverty. In Chapter 3 we saw how, in the United States, wealthier people experience less illness and live longer than do poorer people. In the same way, wealthier nations have lower rates of illness and mortality than do poorer nations. As Table 4.3 shows, residents of less developed nations (where the per capita GNI averages $3,850) die an average of 11 years earlier than do residents of more developed nations (where the per capita GNI averages $23,690).

In large part, poverty causes disease and death by causing chronic malnutrition. According to the **World Health Organization (WHO),** malnutrition accounts for 53 percent of deaths before age 5 in the developing nations (World Health Organization, Child and Adolescent Health, 2005).

Malnutrition indirectly causes disease and death by damaging the body's immune system, leaving individuals more susceptible to all forms of illness

and contributing to both infant and maternal mortality. In addition, malnutrition directly causes numerous health problems, including brain damage caused by iodine deficiency, blindness caused by vitamin A deficiency, and mental retardation caused by anemia.

The Roots of Chronic Malnutrition

Given the link between malnutrition, illness, and death, the importance of investigating the roots of chronic malnutrition is clear. At first thought, we might easily assume that malnutrition in developing nations that have not yet experienced the **epidemiological transition** results naturally from overpopulation combined with insufficient natural and technological resources. Yet food production has surpassed population growth in most countries, including most of those where hunger is common (Lappé, Collins, and Rosset, 1998). In fact, most of the "hungry" countries export more food than they import, and almost every country has access to sufficient food to feed its entire population.

Nor can malnutrition be blamed on population density (Lappé et al., 1998). The Netherlands, for example, is one of the most densely populated countries in the world, yet chronic malnutrition no longer occurs there. Similarly, Honduras has twice as much cropland per person as Costa Rica, yet malnutrition remains common only in Honduras.

If overpopulation, lack of food, population density, and lack of cropland do not explain chronic malnutrition, what does? The answer lies in the social distribution of food and other resources: *Malnutrition occurs most often in those countries where resources are most concentrated.* In other words, malnutrition occurs not in countries where resources are scarce, but in countries where a few people control many resources while many people have access to very few resources (Dreze and Sen, 1989; Lappé et al., 1998). Similarly, within each country, malnutrition occurs most often among those groups—typically females and the poor—with the least access to resources (Messer, 1997). In essence, then, malnutrition is a disease of powerlessness.

If powerlessness causes malnutrition, then eliminating inequities in power should eliminate malnutrition. Evidence from China and Costa Rica supports this thesis. These two nations—the first essentially communist and the second essentially capitalist—both adopted in past decades socialistic strategies for redistributing resources somewhat more equitably. By giving farmland to formerly landless peasants, extending agricultural assistance to owners of small farms, working to raise the status of women, and so on, they made chronic malnutrition almost unknown within their borders. On the other hand, China has not proved immune to *acute* malnutrition caused by famines. According to Nobel Prize–winning economist Amartya Sen, famines occur only when (1) natural events reduce harvests *and* (2) nondemocratic governments (like that in China) need not fear being voted out of office if they do not meet their citizens' basic needs (Sen, 1999).

The Role of International Aid

Similarly, in democratic developing nations, international aid—both food aid and development projects—has helped improve citizens' standard of living and health status. But in *nondemocratic* nations, aid often has had the opposite effect (World Bank, 1998). Most international food aid comes from the United States, under the 1954 Food for Peace Act, or PL-480. The primary purpose of this law is to protect U.S. economic and military interests (Lappé et al., 1998). By sending U.S. farm surpluses overseas as food aid, agricultural producers can maintain prices for their goods at home while opening new markets to U.S. agricultural commodities. In addition, because the United States sells food aid on credit rather than giving it away, food aid helps offset U.S. trade deficits. Food aid also helps protect U.S. military interests by bolstering the governments of nations with strategic military importance for the United States. This explains why U.S. food aid primarily goes not to the hungriest countries, but to countries where the U.S. has military interests, such as Egypt, Israel, El Salvador, Pakistan, and Turkey.

Once food aid reaches the developing nations, its distribution can unintentionally reinforce inequities in access to resources and thus malnutrition (Lappé et al., 1998). Food aid goes directly to foreign governments, which can distribute it as they choose. In countries run by democratic governments committed to social equality, aid is likely to benefit those who need it most. Unfortunately, many developing nations are run by small, economically powerful elites, who sometimes instead sell on the open market any food their governments receive and pocket the profits, thus accentuating social inequities.

Because the hungriest people cannot afford to buy food aid sold in the marketplace, food aid does not improve their nutritional status. Rather, food aid *contributes* to the malnutrition of the landless tenants, sharecroppers, and day laborers who form the overwhelming bulk of those suffering from malnutrition (Lappé et al., 1998). When the United States sells its surplus agricultural commodities in the developing nations, the prices of those commodities in those nations plummet. As a result, owners of small farms may no longer be able to earn a living and must sell their land to larger landowners who can take advantage of economies of scale. Thus land ownership and power become more concentrated, as do the inequities that underlie malnutrition and illness.

Like international food aid, internationally sponsored development projects have had mixed impacts on malnutrition and on health in general (World Bank, 1998). According to the politically conservative World Bank, carefully designed projects, sensitive to local conditions and culture and located in countries with democratic governments, open trade, social safety nets, and conservative economic policies can reduce malnutrition and its root causes. In Pakistan, for example, school enrollment of girls soared in 1995 when local communities received development money to open new schools on the

condition that they increase the enrollment rate for girls (World Bank, 1998). In the long run, this approach should increase the status of women, which, as we will see, is directly linked to malnutrition, infant mortality, and maternal mortality.

On the other hand, although projects like the Péligre Dam in Haiti, the Akosombo Dam in Ghana, and the Aswan Dam in Egypt have brought electricity to urban elites and industrial sites run by multinational corporations, they are flooding and destroying agricultural fields and rural villages and bringing plagues of waterborne diseases to rural dwellers (Basch, 1999: 280–281; Farmer, 1999). Agricultural development projects have been particularly likely to contribute to malnutrition among women and children (Lappé et al., 1998). These projects often start from the assumption, based on Western ideas about the family and the economy, that raising cash crops will benefit families more than raising food crops will and that men rather than women should be responsible for agricultural efforts. However, cultural traditions in many developing nations hold women responsible for growing food and feeding the family (Lappé et al., 1998). When development projects encourage men to grow cash crops, the men sometimes take over land women had used to grow food and, because men consider feeding the family a woman's responsibility, use their profits not to purchase food but, rather, to purchase high-status goods for themselves such as tobacco or Western clothes. As a result, malnutrition increases among women and children.

Infectious and Parasitic Diseases

One result of malnutrition and, more broadly, of poverty is a high rate of infectious and parasitic disease. As Table 4.2 shows, although such diseases have declined rapidly in recent years in the developing nations, they still account for far more deaths there than in the industrialized nations.

As in Europe and the United States before the twentieth century, the high rates of infectious and parasitic diseases reflect the dismal circumstances in which many people live. In addition to malnutrition, overcrowding promotes the spread of airborne diseases like tuberculosis, while contamination of the water supply with sewage spreads waterborne diseases such as cholera and intestinal infections. Similarly, poor housing and lack of clean water for bathing result in frequent contact with disease-spreading rats, fleas, and lice.

The infectious and parasitic diseases that cause the most deaths in the developing nations are **HIV disease**, tuberculosis, diarrheal diseases, and malaria. In addition, measles is a major cause of death for children. In the next sections we consider these diseases in more detail.

HIV Disease

HIV disease now kills more persons in the developing world than does any other infectious or parasitic disease. More than 90 percent of HIV-infected persons in the world live in developing nations (World Health

Organization, 2002). HIV infection is now endemic in parts of the Caribbean and in much of Africa, and it is spreading especially rapidly in Asia (particularly in India and Southeast Asia).

From the beginning of the epidemic, heterosexual intercourse has been the major mode of HIV transmission in the developing nations. Consequently, women account for half or more of all cases in these nations. Because many of these countries lack the funds needed to test blood for HIV, transmission via blood transfusions remains common. Similarly, in part because they lack the funds to supply infected women with the drug azidothymidine (AZT), which can prevent transmission from mother to fetus, such transmission remains common. (However, the recent development of new, inexpensive drug regimens to prevent maternal-fetal transmission could make it less common in future.) Infection is most common in urban areas but is spreading rapidly in the countryside, especially in areas where war has disrupted families and increased both consensual and nonconsensual sexual intercourse between soldiers and villagers. (Box 4.1 discusses in more detail how war and militarism affect health.) In the hardest-hit countries (most located in sub-Saharan Africa), more than 25 percent of adults are infected, while life expectancies have dropped below 40 years (UNAIDS/WHO, 2004).

As stunning as these numbers might appear, they understate the impact of HIV disease. Unlike most illnesses, HIV disease most commonly strikes at midlife, normally the most economically productive years. In the hardest-hit countries, agricultural production is declining steeply, causing food shortages. Moreover, HIV disease disproportionately has affected the most educated segments of the population in the developing nations; in parts of Uganda and Malawi, almost one-third of all teachers have the disease (Schemo, 2002). Consequently, HIV disease has crippled both schools and the economy in numerous countries. The resulting increase in unemployment and poverty is sending ripples of illness and death throughout these countries. In addition, HIV disease typically strikes during the child-rearing years. This situation has produced a rise in child deaths, for whenever mothers die, their children are also more likely to die, especially if they have no surviving relatives to care for them (UNAIDS/WHO, 2004). Map 4.1 shows the worldwide distribution of children who have lost one or both parents to HIV disease.

Several theories have been proposed to explain why HIV disease has hit Africa so hard. Two theories that have gained the most supporters are the cultural theory used by demographer John Caldwell and his colleagues and the economic and political theory, known as "world systems theory," used by sociologist Charles Hunt (see Key Concepts 4.1).

Caldwell and his colleagues (1989, 1991, 1992) have argued that because soils are poor throughout much of Africa, farming there always has been highly labor intensive, and farming families have needed to have many children to help them in the fields. Consequently, a cultural system developed

Box 4.1 ***War and Health***
by Lisa Comer

In addition to poverty, malnutrition, germs, and parasites, another important, although often overlooked, source of death and disease in the developing nations is war (Geiger and Cook-Deegan, 1993; Toole and Waldman, 1993). War is an ongoing fact of life in many developing nations, and high rates of civilian deaths from bombs and guns are the norm rather than the exception. For example, a report published by the prestigious British medical journal, *Lancet,* estimated that the risk of violent death among Iraqi civilians increased 58-fold after the invasion by U.S.-led coalition forces, and that 100,000 civilians, mostly women and children, were killed by military forces in the first 18 months after the invasion (Roberts et al., 2004). In addition to the risk of death from military violence, civilians in war-torn lands also risk death or injury from forced labor, chemical warfare, torture, mutilation, rape, and malnutrition (when forced to leave their farms and herds). For example, it is estimated that for every civilian killed by combatants in the Congo during 2005, sixty-two—most of them women and children—were killed by malnutrition, disease, or other war-related causes (Lacey, 2005). These physical traumas typically are magnified by the psychological traumas of losing one's family, community, and, frequently, dignity; the events of September 11 brought home some of these issues to U.S. citizens.

Human rights violations committed during wars often lead to a rise in illness among civilians. Forcing refugees into overcrowded, unsanitary relocation camps frequently results in epidemics of communicable diseases, which often go untreated because health care workers and medical facilities—insufficient in the best of times—are targeted for destruction by the military (Geiger and Cook-Deegan, 1993; Toole and Waldman, 1993). For the same reason, wars often disrupt public health services, including

that valued fertility over chastity or monogamy and valued ties between parents and children more than ties between spouses. As a result, individuals tended to have relatively high numbers of sexual partners over their lifetimes. In past centuries, Africans typically obtained these sexual partners within small social and geographic circles. Since the rise of European colonization, however, and the attendant growth of towns, bars, transportation networks, and a commercial sex industry, both the size and geographic spread of Africans' social circles have broadened, causing dramatic increases in average numbers of sexual partners as well as the geographic diversity of those partners. As a result, Africans are particularly likely to be exposed to sexually transmitted diseases, including HIV.

Whereas Caldwell and his colleagues give primary emphasis to cultural factors in explaining the devastating rates of HIV disease in Africa, Charles Hunt (1989, 1996) emphasizes the impact of economic and political conditions. Hunt's argument is based on **world systems theory,** which divides the world's nations into **core nations, peripheral nations,** and a few **semiperipheral nations** (Chase-Dunn, 1989; Wallerstein, 1974). The core nations,

vaccination programs for children. Moreover, an estimated 300,000 children as young as age 8 in forty nations are serving (usually involuntarily) as soldiers (Crossette, 2001). These children are exposed to all the horrors and dangers of warfare and to increased risks of malnutrition, disease, landmine injuries, sexual abuse, and substance abuse, while losing opportunities for education and normal family life that might protect their mental and physical health as adults.

Given the profound impact of war on public health, the medical community can and sometimes does play a critical role in documenting and preventing war crimes and related human rights violations. Health care workers' documentation of these horrors is especially important, because politicians are more likely to believe testimony about war crimes received from health care workers as compared to that received from other civilians (Geiger and Cook-Deegan, 1993; Swiss and Giller, 1993). Consequently, health care workers can help to awaken public awareness of war crimes and human rights violations. By so doing, they can speed health care and other assistance to war survivors and bring war criminals to justice.

Over the years, individual health care workers and nonprofit groups, such as Physicians for Human Rights and *Medécins Sans Frontières* (Doctors Without Borders)—which won the Nobel Peace Prize in 1999—have eased the burdens of war victims substantially. In addition, beginning in the early 1990s, the American medical community moved toward officially asserting a commitment to war survivors. For example, the *Journal of the American Medical Association* in 1993 devoted part of an issue to this topic. If this pattern continues, doctors may play a growing role in documenting, treating, and perhaps even preventing this significant source of death and disease in the developing nations.

such as France and the United States, are in effect an upper class of nations—enjoying highly diversified, industrialized economies that provide a high standard of living for most citizens. Conversely, the peripheral nations form a lower class of nations, where modernization and industrialization have developed slowly if at all, and the standard of living is low for all but a small elite.

World systems theory argues that the core nations have achieved and maintained their present economic position by exploiting the resources of the peripheral nations. This is done through the work of multinational corporations based in the core nations. Rather than establishing industries in peripheral nations that would help those nations modernize their economies, multinational corporations instead have established industries that extract raw goods (such as rubber, minerals, or specialized food crops). Profits from the sale of those raw goods and from the finished goods made from those raw goods are brought back to the core nations. Lacking their own modern industries, peripheral nations must buy most manufactured goods and, sometimes, basic foods from the core nations. In this way, the

UNAIDS/WHO (2002: 190–201).

Map 4.1 ***Children Under Age 15 and Currently Living Who Have Lost One or Both Parents to AIDS***

Key Concepts 4.1

Understanding the Spread of HIV in Africa

Type of Theory	Cultural	Economic and Political: "World Systems Theory"
Theorist	John Caldwell	Charles Hunt
Central dynamic	Labor-intensive farming requires large families for success.	Core nations exploit peripheral nations for their own profit.
Central effect	Fertility is valued more than chastity, monogamy, or fidelity.	Multinational corporations from core nations create only low-wage jobs in peripheral nations, extracting raw materials in a few, centralized locations.
Social consequence	People have many sexual partners.	Men must leave their farms to seek paid work in extractive industries. But they don't earn enough money to support their families, and women can't grow enough crops on their own to survive. Men turn to prostitutes while away from home, and women become prostitutes to survive.
Health consequence	HIV spreads.	HIV spreads.

core nations maintain a favorable trade balance with peripheral nations, force the peripheral nations to rely for their economic well-being on inherently unstable markets for raw materials, and perpetuate the underclass position of the peripheral nations.

Applying this theory to HIV in Africa, Hunt (1989, 1996) argues that the African nations remain largely under the economic control of corporations based in the former colonial powers. To increase their profits, those corporations have concentrated industries in a few sites, rather than distributing manufacturing, mining, and corporate agriculture around the continent. Attracted by the prospects of cash income and faced with little means of earning a living in their home villages, native men leave the countryside to seek employment at these sites, often living apart from their wives and families for weeks, months, or even years at a time. These conditions foster the

use of prostitutes and, in turn, the spread of sexually transmitted diseases, including HIV disease. Once workers become ill, their employers fire them and send them back to their villages, where they spread infection still further.

Meanwhile, health conditions also deteriorate among women and children left in rural villages. The loss of men's labor makes it more difficult for women to grow sufficient crops to feed themselves and their children. As a result, women typically adopt agricultural practices and crops that require less labor, even though these changes deplete the soil and provide less nutrition. Those left in rural villages grow progressively malnourished and susceptible to disease. Faced with these conditions, women's only option is to seek employment in cities, where many find prostitution the only available job. This completes the cycle through which multinational corporations indirectly encourage HIV infection among both men and women, in rural and urban areas.

Support for this theory comes from data suggesting that HIV was most common and appeared earliest in areas where migrant laborers worked, was next most common in the rural areas from which migrant laborers were recruited, and was least common in areas without links to migrant labor (Hunt, 1989). Other studies similarly have found that economic and structural factors better explain the explosive spread of HIV in Africa than do cultural factors (Simmons, Farmer, and Schoepf, 1996). At this point, however, the poor quality of data on HIV rates in Africa makes it difficult to test any theory with confidence. Moreover, neither the cultural theory used by Caldwell and his colleagues nor the materialist theories used by Hunt and others can account fully for the geographic distribution of HIV infection in Africa (Hunt, 1996). Thus, neither theory can be considered fully supported.

Tuberculosis

Each year, tuberculosis infects about 9 million people and kills about 2 million (World Health Organization, 2002). The disease is most common in Asia, followed by Africa and the Middle East. Tuberculosis is particularly devastating because, like HIV, it typically hits people during their prime work years, and so sharply curtails family incomes.

As described in Chapter 2, the incidence of **tuberculosis** is increasing around the world for two reasons. First, developing nations cannot afford to treat the new, drug-resistant strains of the disease. Second, the rise of HIV infection, which makes individuals more susceptible to other infections, has led to soaring rates of tuberculosis: During the last decade, in the countries hardest hit by HIV, the number of cases of tuberculosis has doubled or tripled (World Health Organization, 2002).

Diarrheal Diseases

In industrialized nations, diarrhea is generally a source of passing discomfort. In developing nations, diarrheal diseases can be fatal, especially among children under age 2. WHO estimates that diarrheal diseases kill more than

2 million children yearly, accounting for 27 percent of all child deaths (World Health Organization, Child and Adolescent Health, 2005). Diarrhea is a symptom, not a disease, and can result from infection with any of several bacteria, viruses, or parasites. Diarrhea kills by causing dehydration and electrolytic imbalance. It also leads to malnutrition, because affected children not only eat less but also absorb fewer nutrients from the foods they do eat. In turn, malnutrition leaves children susceptible to other fatal illnesses. Conversely, other illnesses can leave children susceptible to both diarrheal diseases and malnutrition.

Diarrheal diseases (including dysentery, cholera, and infection with *E. coli*) occur when individuals ingest contaminated water or foods. The likelihood of severe diarrhea is greatest when families lack refrigerators, sanitary toilets, sufficient fuel to cook foods thoroughly, or safe water for cooking and cleaning. Using government reports from 2002, WHO estimates that about 1 billion people lack access to "improved" water supplies, and even more lack access to truly safe water (WHO/UNICEF, 2004). These figures undoubtedly overestimate access, because governments may report to WHO that citizens of their countries have access to clean water even if the only water source is a single, sporadically working faucet, a mile or more away, and shared by many families. The *number* of persons without safe water is greatest in Asia, whereas the *percentage* of those without safe water is highest in sub-Saharan Africa.

Survival rates for children with diarrheal diseases in developing nations have improved rapidly in recent years. Before the 1960s, those suffering from diarrheal diseases could be treated only by using expensive intravenous fluids, thus making treatment unfeasible for many in the developing nations. Since then, however, scientists have demonstrated that a simple and inexpensive solution of dried salts and water is just as effective, and the World Health Organization has actively and successfully promoted this "oral rehydration therapy."

Malaria

Each year, about 300 million people (mostly in tropical Africa) become infected with malaria, and more than a million die from the resulting anemia, general debility, or brain infections (World Health Organization, 2002). In addition, many of those who survive will experience disabilities from the intermittent chills, fevers, and sweats that malaria brings.

Malaria poses the greatest threat to pregnant women, infants, and young children. Among pregnant women, malaria increases the risks of miscarriage, anemia, and premature labor, each of which increases the risk of potentially fatal hemorrhaging. Infants born to malaria-infected women typically have lower than average birthweights and, hence, higher chances of death or disability. Malaria is often fatal among young children, whose immune systems have not yet developed sufficiently to fight infection. About 90 percent of those who die from malaria are under age 5, and malaria

accounts for 12.7 percent of deaths among children under age 5 (World Health Organization, 2002; World Health Organization, Child and Adolescent Health, 2005).

Malaria is caused by protozoan parasites belonging to the genus *Plasmodium.* Malaria is transmitted only by *Anopheles* mosquitoes and, consequently, exists only where those mosquitoes live. (*Anopheles* mosquitoes and malaria used to exist throughout the United States and appear to be making a comeback; in 1999, for the first time in decades, malaria was diagnosed in a U.S. resident who had neither lived nor traveled in another country.) The disease cycle begins when a mosquito bites an infected individual and ingests the parasite from the individual's blood. The parasite reproduces in the mosquito's stomach and then migrates to the mosquito's salivary glands. The next time the mosquito bites someone, it transmits the parasite to that person.

Because of this transmission cycle, eliminating *Anopheles* mosquitoes will eliminate malaria. Since the 1940s, antimalaria campaigns have depended heavily on using pesticides to kill mosquitoes. Although these campaigns initially work well, over time pesticide-resistant mosquitoes evolve and the pesticides lose their potency. As a result, nations must constantly search for new and more toxic pesticides, each of which can endanger birds, fish, and insects that benefit humans. Because of these problems, some recent campaigns have instead focused on encouraging the use of insect repellents, mosquito netting, and screens to prevent infection. These campaigns also have focused on encouraging the use of drugs, such as chloroquine and mefloquine, which can both prevent and treat malaria. Unfortunately, because these drugs can cause debilitating side effects and cost more than many residents of developing nations can afford, infected individuals often stop taking the drugs before they are cured. This continual undertreatment of malaria, like the undertreatment of tuberculosis, has encouraged the evolution of drug-resistant strains of the disease around the globe. Consequently, although malaria has been eliminated in some regions, the situation in the rest of the world has worsened during the past decade.

Measles

To persons living in the industrialized nations, where measles is considered a minor childhood illness, it might seem odd to see measles listed as a major cause of death. Yet measles kills 6.3 percent of children under age 5 in the developing nations (World Health Organization, Child and Adolescent Health, 2005). These deaths occur when children, already weakened by malnutrition and poor living conditions, become further weakened by measles. Their bodies' ability to fight disease diminishes, leaving them susceptible to potentially deadly pneumonia, respiratory infections, and diarrhea. Unlike tuberculosis and malaria, however, rates of measles have declined almost by half since 1990, following a worldwide WHO measles vaccination campaign.

Immunization rates have remained unchanged in Africa, however, due to ongoing and severe economic problems on that continent.

Unfortunately, even if vaccination becomes more widespread and rates of measles continue to decline, the overall health of children in the developing nations will not improve unless social conditions also improve. As long as conditions in the developing nations continue to foster diseases of all kinds, children who do not die from measles are still likely to die young from other diseases; at least one study has found that reducing a country's death rate from measles has no effect on its rate of childhood mortality (Turshen, 1989). Only when the basic inequities in living conditions that underlie death and disease are substantially reduced will more children survive.

Infant Mortality

Like infectious and parasitic diseases, infant mortality is far more common in the developing nations than in the industrialized nations. As of 2004, the average infant mortality rate in the developing nations was 62 per 1,000 live births—nine times higher than the rate in the industrialized nations (Population Reference Bureau, 2004). These averages, however, hide the great range in infant mortality rates within the developing nations. (See Table 4.4.)

The most common causes of infant mortality in the developing nations are malnutrition and infections (particularly respiratory infections and diarrheal diseases). Because we examined these factors earlier in this chapter,

Table 4.4 ***Infant Mortality per 1,000 Live Births***

Country	Infant Mortality Rate	Country	Infant Mortality Rate
Somalia	207	Philippines	29
Afghanistan	165	Mexico	25
Ethiopia	105	Thailand	20
Haiti	80	Costa Rica	10
India	70	United States	7
Zimbabwe	65	Cuba	7
Bolivia	54	France	4
Egypt	38	Japan	3
Brazil	33	Singapore	2
China	32		

Source: Population Reference Bureau (2004).

the focus here is on two other important sources of infant mortality: women's status and infant formula manufacturers.

The Role of Women's Status

The low status of women plays a critical role in infant mortality in developing nations. Infant mortality occurs most often among babies with low birthweights. In the industrialized nations, low birthweight typically occurs when babies are born prematurely. In the developing nations, low birthweight typically occurs among babies born at full term to mothers who have malaria, are underfed, routinely perform heavy labor, or suffer from anemia, which affects more than 50 percent of pregnant women in developing nations (World Health Organization, 1998b).

These conditions reflect women's typically low status. Throughout the developing nations, girls and women often spend long hours in heavy labor and, in many nations, receive less nutrition than do boys and men (Messer, 1997). In addition, girls are less likely than boys to be immunized against disease, to receive health care when ill, and to receive health care promptly (Messer, 1997). Girls are thus more likely to become ill and less likely to survive their illnesses. Consequently, women often enter their childbearing years already ill and malnourished—a situation that worsens as pregnancies further stress their bodies and drain their energy.

Similarly, infant mortality is highest among infants born to very young or very old mothers and to infants born less than 18 months after a sibling. This situation occurs most commonly in cultures that expect women to marry at young ages and that judge women's worth by the number of sons they produce. In part, these cultural values reflect the economic realities of agricultural life: In agricultural societies, children produce more economic resources than they consume, so a family with many children is more likely to succeed than a family with few children. Further, in the absence of any formal provisions for social security, individuals can guarantee their security in old age only by having sons. (Having daughters usually does not help, because daughters in most cultures are expected to take care of their husbands' parents rather than their own.)

Nevertheless, even in these societies many women would like to limit their fertility. This desire is so great that throughout the world, women often choose illegal abortion over childbearing: 44 percent of all abortions performed worldwide (and 54 percent in developing nations) are illegal (Henshaw, Singh, and Haas, 1999). In fact, statistics from Romania, where abortion was outlawed between 1966 and 1989, suggest that making abortion illegal has almost no long-term impact on either the abortion rate or the birth rate—although it dramatically increases the number of women who die or become infertile following unsafe abortions (World Health Organization, Division of Reproductive Health, 1998b). Meanwhile, the slums of Bombay and Rio de Janeiro, like the orphanages of Romania after 1966, are filled with abandoned children whose families could not

support them. Similarly, in parts of Asia, infanticide of girl babies continues to occur among families that want babies only if those babies are male, and abortions now often occur when women learn through genetic testing that they are carrying a female fetus (Banister, 1999; Lawn, Cousens, and Zupan, 2005). This chapter's ethical debate (Box 4.2) discusses some of the moral quandaries posed by using abortion for sex selection.

In sum, research suggests that if women's social status were higher, they would enter their childbearing years with healthier bodies, wait longer before having babies, wait longer between babies, and have fewer babies in total, with each of these factors lowering the infant mortality rate. For all these reasons, many researchers and public health workers have suggested that the most effective way to reduce infant mortality is to improve the status of women, thereby increasing their power to make decisions for themselves. This explains at least partly why infant mortality is so much lower in Costa Rica, China, and Zimbabwe than in other countries at similar levels of development. Box 4.3 describes the actions of one nonprofit agency that is working to improve the health of developing nations by improving women's status.

The Role of Infant Formula Manufacturers

A final cause of infant mortality in the developing nations is the use of infant formula and other foods instead of or in addition to breast-feeding. In Chapter 3 we noted the basic biological benefits of breast-feeding for both infants and mothers. The benefits are even greater in the developing nations, where babies who are fed alternatives to breastmilk (whether infant formula, juice, water, or any other substances) are twenty-five times more likely than breast-fed babies are to die from infections (*Lancet,* 1990). The World Health Organization (1993) estimates that about 1.5 million babies die unnecessarily each year because they are not breast-fed.

In the developing nations, several factors contribute to the especially high rates of death and disease among infants who are not breast-fed. First, in addition to the inherent limitations of substitutes for breastmilk, the process of bottle-feeding itself can expose infants to tremendous risks. Infant formula is typically sold as a powder that must be mixed with water and then transferred to a bottle before it can be used. In most developing nations, this water contains dangerous infectious organisms. Those organisms can be killed if the water, bottle, and nipple are boiled. However, families do not necessarily understand how or why they should do so. Moreover, throughout the developing nations, many women and children already spend hours each day getting water and firewood and lack the time and energy to get the extra supplies needed for sterilization.

Second, other foods cost far more than breastmilk (which is not actually free, because it reduces mothers' nutritional stores and can prevent their return to paid employment). To conserve money, families often stretch infant formulas by diluting them with water. Babies fed diluted formula in essence starve to death even while filling their stomachs.

Box 4.2 ***Ethical Debate: The Ethics of Sex Preselection***

Zhang Zhiquan and his wife Mei live in a rural village in the People's Republic of China. Growing up in rural China, they learned early that couples needed sons to prosper and to care for them in their old age. They also learned that sons were essential for passing on the family name, that wives who produced no sons deserved mockery and abuse, and that girls were so useless that in the past many rural families did not even bother to name them. When Mei became pregnant, therefore, they had to decide what they would do if the baby were female. In the past, should they have felt unable or unwilling to raise a daughter, their only options would have been to kill the baby or give it up for adoption—choices that some families still make. Now, however, they had one additional option: having a health care worker identify the fetus's sex through ultrasound or amniocentesis and perform an abortion if the fetus were female.

Half a world away, the same issues of sex preselection and selective abortion arise, although in a different form:

Sharon and James Black live in Denver, Colorado, with their two young daughters. Because they both believe that children need a parent home at the end of the school day, Sharon works only part-time as a secretary, while James works two jobs so they can make ends meet. Sharon has just learned she is pregnant again. Although they had only planned on having two children, James always wanted a son with whom he can share his interests in sports and automobiles. Having another child, however, will further strain their finances and make it difficult for Sharon to return to full-time work for several more years. Consequently, continuing the pregnancy does not seem worthwhile unless they know the fetus is male.

Is sex preselection ethically justified in these cases? Although the circumstances differ enormously, for both families the birth of a daughter would bring substantial economic hardship. For both families, too, a daughter would enter life unwanted and already having failed to meet her parents' expectations. In addition, for the Chinese family and possibly (although to a lesser extent) the American family, the birth of another daughter might lower the wife's status and strain the marriage. Given these circumstances, wouldn't it be best for all concerned if the families use the available medical technology to test their fetuses' sex and to abort them if they are female?

For hundreds of thousands of couples in Asia and a growing number in the West, the answer, resoundingly, is yes. In China and India, 117 boys are born for every 100 females overall,

Finally, by altering the hormonal levels in a woman's body, breast-feeding serves as a moderately effective contraceptive. Breast-feeding thus helps women to space out pregnancies and gives each baby a better chance for survival. For all these reasons, WHO (2001) recommends that children throughout the world, in both industrialized and developing nations, receive only breastmilk during the first six months of life and a combination of breastmilk and other foods until at least age 2.

with an even more skewed sex ratio in rural areas (Eckholm, 2002; Lawn, Cousens, and Zupan, 2005). The same forces are at work in the industrialized nations, although not as strongly: In one study, 47 percent of surveyed geneticists and genetic counselors in these nations had received requests from couples desiring fetal sex selection (D. Wertz and Fletcher, 1998). Twenty-nine percent of the respondents reported that they would test fetal sex for a couple with four daughters who intend to abort if their fetus is female, and another 20 percent would refer the couple to someone they knew would do so.

Those who support prenatal sex selection argue that selective abortion causes little harm, whereas the birth of unwanted girls financially strains families, leaves mothers open to ridicule or even physical abuse, and results in child neglect, abuse, or abandonment. Those who oppose sex preselection argue that it does more harm than good because it reinforces the low status of females. Although in rare circumstances families use medical technologies to ensure that their babies are female (such as families with a history of hemophilia, a disease that affects males but not females), almost always sex preselection means selecting males. In the United States, both women and men prefer boys as their first child and prefer two boys and a girl to two girls and a boy; families are most likely to have three children if their first two are female (B. Rothman, 1986).

When families select male fetuses over female fetuses, they proclaim male babies preferable. Moreover, when health care workers help families to select male babies, the workers in essence validate this preference. Finally, when health care workers assist in sex preselection—whether helping families to select males or females—they reinforce the idea that males and females are inherently different. After all, if male and female personalities, interests, and aptitudes were more similar than different, why would families need to choose one over the other?

In sum, to assess the ethics of sex preselection we need to weigh the potential benefits and costs for families and for society as a whole.

Sociological Questions

1. What social views and values about medicine, society, and the body are reflected?
2. Which social groups are in conflict over this issue? Whose interests are served by the different sides of this issue?
3. Which of these groups has more power to enforce its view? What kinds of power do they have?
4. What are the intended consequences of this policy? What are the unintended social, economic, political, and health consequences of this policy?

Given all the benefits of breast-feeding, why don't more women in developing nations breast-feed? Part of the answer lies in traditional cultural beliefs, such as the conviction that children require certain traditional foods for health, or that it is unsafe to have sex with breast-feeding women (Dettwyler, 1995). Part of the answer lies in practical economic and social issues, such as the difficulty of meshing breast-feeding with paid work. And part of the answer lies with multinational food corporations (most of them

Box 4.3 ***Making a Difference: Freedom from Hunger***

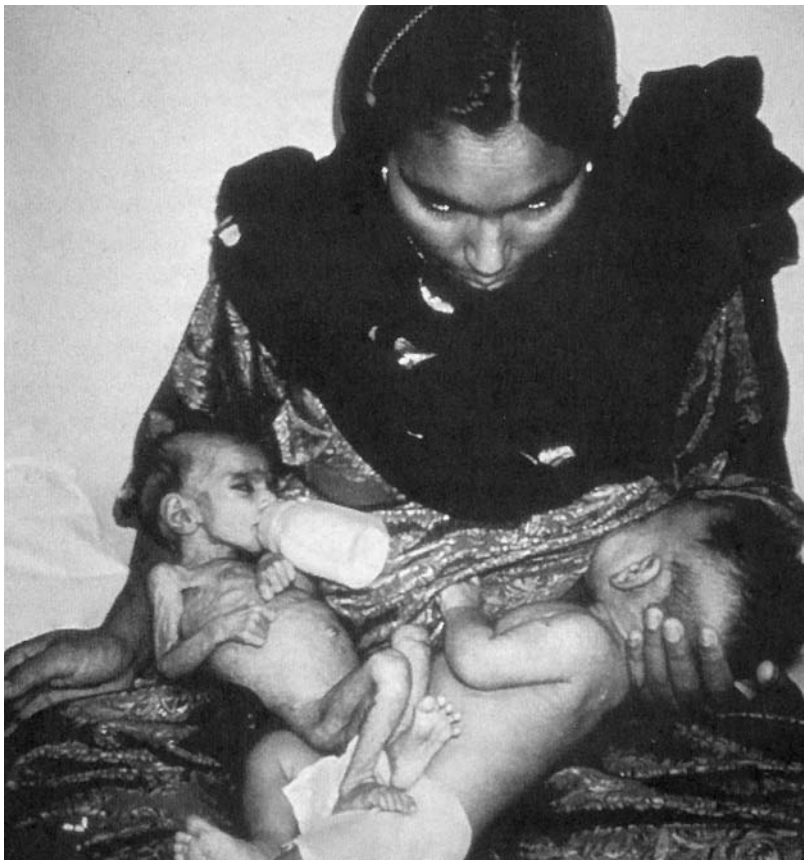
Freedom from Hunger (FFH) began in the 1940s as a traditional food aid program, providing food relief to the hungry in the developing nations of Africa, Asia, and Latin America. By the 1980s, however, the organization had concluded that the only way to reduce hunger in the long run was to help poor women in the developing nations to become economically self-sufficient. As a result, in 1989 FFH committed all its resources to providing **microcredit** to women in developing nations through its Credit with Education program. Microcredit refers to the practice of awarding very small, short-term loans (typically between $10 and $300 for 4 to 6 months) to poor women who have no meaningful assets or other access to affordable cash credit. FFH distributes these loans through community-based credit associations that it establishes, made up of 20 to 30 women living in the same town. The association is then responsible for allocating credit to individual women and collecting debt payments from them. More than 100,000 women have participated in the Credit with Education program. To date, FFH's credit associations have had exceptional success in repaying their loans, so that the system has become largely self-sustaining.

Although the amounts given in these loans may seem too small to be meaningful, they can transform women's lives. Women who receive microcredit loans no longer have to purchase supplies or raw materials from local vendors on credit at usurious rates and, instead, can start investing in their own businesses, such as raising chickens or making clothing. In addition, FFH links microcredit to health and nutrition education, using its credit associations to provide basic information about such topics as breast-feeding and treating infant diarrhea. FFH provides women and, in the long run, their children and families, with information on how to improve their health as well as the resources necessary to do so.

based in the industrialized nations), which have convinced women in the developing nations that infant formula is superior to breastmilk.

To create a market in the developing nations, corporations have provided free or subsidized formula to patients in maternity hospitals (Gerber, 1990; *Lancet,* 1990). If these women use the formula instead of breast-feeding while in the hospital, they may find it physiologically impossible to switch to breast-feeding later. Corporations also have mounted massive advertising campaigns throughout the developing nations to convince women that bottle-feeding produces healthier babies and even lightens babies' skin—a status symbol in many developing nations. One particularly pernicious strategy is to dress saleswomen as nurses and send them to villages and maternity hospitals to encourage women to bottle-feed.

During the 1970s, recognition of bottle-feeding's role in infant mortality led to the rise of an international, consumer-led campaign, based in the United States and Europe, against the multinational corporations that produce infant formula (Gerber, 1990). The campaign focused especially on Nestlé, the most aggressive marketer of infant formula in the developing



Children's Hospital of Islamabad and ACC Subcommittee on Nutrition, World Health Organization.

This woman knew breastmilk was healthier; but fearing she would not have enough breastmilk, she breast-fed only her son and bottle-fed his twin sister.

nations. The campaign's main tools were an international awareness campaign and a consumer boycott of infant formula and other products made by Nestlé.

In 1981, and partly in response to this campaign, the WHO Assembly adopted an International Code of Marketing of Breastmilk Substitutes, aimed at sharply limiting the promotion and sale of formula in the developing nations. (The sole nation to vote against the code was the United States, which finally ended its opposition in 1996.) Among its provisions, the code calls for manufacturers to refrain from advertising infant formula, providing free samples to mothers, promoting infant formula through health care facilities, hiring nurses or women dressed as nurses to promote infant formula, providing gifts or personal samples to health care workers, and providing free or low-cost supplies to hospitals.

By 1984, all the major formula producers had agreed to accept the WHO code, bringing an end to the boycott. Within the developing nations, however, the mistaken notion that bottle-feeding was more "modern" and healthier

already had taken root. Moreover, it soon became obvious that the manufacturers had reneged on their promise to abide by the code. To call attention to these code violations, the International Baby Food Action Network began a new boycott in 1988. Partly due to this consumer pressure, billboards and other advertisements for infant formula have become less common, and health care workers in developing nations now more often actively support women's efforts to breast-feed. Manufacturers continue to break the code, however, although they now focus more on encouraging mothers to stop breast-feeding early rather than encouraging mothers never to begin (Wise, 1998). One study conducted through **random sampling** in four developing nations found that 10 percent of mothers with children under six months old and 25 percent of health care facilities had received free samples of bottle-feeding supplies from manufacturers, in direct violation of the WHO code (Taylor, 1998). This survey probably underestimates the problem because it studied only some of the developing nations known for reasonably good compliance with the code (A. Costello and Sachdev, 1998). As of 2005, activist organizations continue to report ongoing code violations around the world (International Baby Food Action Network, 2005).

Maternal Mortality

Although maternal mortality is now rare in the industrialized nations, in the developing nations it remains the primary cause of death among women of reproductive age. For example, the lifetime risk of dying from childbirth complications is one in 1,400 in Europe, one in 65 in Asia, and one in 16 in Africa (World Health Organization, 1998b).

How can we account for the tremendous toll maternal mortality takes in the developing nations? Patricia Smyke, writing for the United Nations, explains:

> If you ask, "Why do these women die?" the technical response is: "The main causes of maternal death are hemorrhage, sepsis (infection), toxemia, obstructed labor and the complications of abortion." But looking beneath those immediate causes, one must ask why they occurred or why they were fatal. The answer to that is: lack of prenatal care; lack of trained personnel, equipment, blood or transport at the moment the obstetrical emergency arose, or earlier, when it might have been foreseen and avoided; lack of family planning to help women avoid unwanted pregnancies, too many or too closely spaced births, or giving birth when they were too young or too old; preexisting conditions like malaria, anemia, fatigue and malnutrition that predispose to obstetrical complications; problems arising from female circumcision. From that list of intermediary causes one must go deeper still to identify the cultural and socioeconomic factors that put young girls, almost from birth, on this road to maternal death: . . . low status of women and discrimination against them; poverty; lack of education; local customs; and government policies that give low priority to the needs of women. (Smyke, 1991: 61–62)

Like infant mortality, maternal mortality occurs most often among women who suffer from malnutrition or illness (most commonly, malaria). Hemorrhage more often occurs during abortion or childbirth in women who develop anemia because of malaria or inadequate diets. Maternal mortality is also most common among women who give birth before age 20 or after age 35. In Bangladesh, for example, where half of all women marry by age 15, maternal mortality is five times higher among those ages 10 to 14 than among those ages 20 to 24 (Basch, 1999: 208). Mortality also rises with each birth after the third. Finally, maternal mortality is more common among women who give birth in unsanitary conditions and among those who have been circumcised; Box 4.4 provides further details on this dangerous practice.

Another cause of maternal mortality in the developing nations—accounting for 13 percent of deaths—is unsafe abortion (World Health Organization, Reproductive Health and Research Department, 2004). Abortion is a technically simple procedure, far safer than childbirth when performed by trained professionals working in sterile conditions with proper tools. However, most developing nations have criminalized or legally restricted abortion because of cultural traditions, religious beliefs, a desire by political elites to increase population, or financial and political pressures from the United States—which since 1973 has withheld family planning funding from any agencies that offer abortions. In other countries, abortion is legal, but many women cannot afford to obtain abortions from a trained health care worker. Consequently, almost 20 million women yearly—most of whom are married with several children—receive unsafe abortions. Unsafe abortion accounts for about 13 percent of maternal mortality in the developing nations, most commonly because of infections caused by unsterile instruments, hemorrhage when those instruments pierce the uterus, or poisoning when women try to abort themselves by swallowing toxic chemicals (World Health Organization, Reproductive Health and Research Department, 2004). Unsafe abortion can also cause illness or permanent disability: Hospitals in the developing nations spend as much as 50 percent of their resources on treating the aftereffects of unsafe abortion.

Respiratory Diseases

Finally, respiratory diseases, such as emphysema, are also major killers in the developing nations, as in the industrialized nations. As with all disease in the developing nations, poverty and malnutrition increase individual susceptibility to illness. In addition, long periods spent cooking over open fires in closed rooms expose millions of women to cancer-causing toxins; the effects are equivalent to smoking several packs of cigarettes daily. Meanwhile, those who live in cities like Caracas, Mexico City, or Calcutta risk their health daily because of pollution from automobiles and industries. Unfortunately, in some developing nations, government officials lack the political or economic power to control polluting industries; in other such nations, officials are

Box 4.4 *Female Circumcision*

According to the World Health Organization, between 100 and 140 million girls and women across Africa as well as in Malaysia, Indonesia, Yemen, and elsewhere have experienced the ordeal of female circumcision, and about 2 million additional girls are circumcised each year (World Health Organization, 2000a). Female circumcision is a brutal and sometimes fatal procedure, in no way analogous to male circumcision. In clitoridectomy, the first and least common of the three types of female circumcision, either the tip of the clitoris or the skin over the clitoris is cut off. In excision, which comprises about 80 percent of cases, the entire clitoris and labia minora are removed but the vulva is left untouched. In infibulation, which comprises about 15 percent of cases, the clitoris, labia minora, and parts of the labia majora are removed and the sides of the vulva are stitched together, leaving only a small opening for urine and menstrual fluid to escape. Most commonly, a midwife or other lay healer performs the circumcision using a razor blade, knife, or piece of broken glass.

Those who support circumcision believe it makes women more docile and reduces their sex drives, making them better wives and less likely to disgrace their families by engaging in premarital or extramarital sexual relationships. In addition, supporters of circumcision believe that circumcised women are cleaner, healthier, more fertile, and prettier. In countries where circumcision is the norm, these beliefs leave uncircumcised women with few marriage prospects and pressure parents to have their daughters circumcised even if the parents disapprove of the practice.

Circumcision substantially impairs the health of young girls and women. Given the unsanitary conditions in which it is usually performed, the operation can cause life-threatening shock, hemorrhage, infections, or tetanus. Those who survive often experience pain during intercourse and chronic urinary, vaginal, or pelvic infections, sometimes resulting in infertility. If they do become pregnant, scar tissue and the narrowed vaginal opening can make it difficult for a baby to emerge, causing women to die from hemorrhage and babies to die from brain damage. These health problems have convinced some doctors and nurses to perform circumcisions to protect girls who would otherwise be circumcised under more dangerous conditions.

To date, most nations where circumcision occurs officially oppose female genital mutilation, and Senegal and Egypt have outlawed the practice. However, these actions have had little impact on its prevalence (World Health Organization, 1997). Western opposition has proven similarly ineffective, because it is difficult if not impossible for Westerners to condemn circumcision without appearing to condemn the cultures in which it is embedded. Thus, the most effective opponents of female circumcision are those who come from within these cultures. With this in mind, feminists and health care workers native to these cultures have formed alliances aimed at stopping this practice, such as the Inter-African Committee on Traditional Practices Affecting the Health of Women and Children.

unwilling to do so because they benefit economically from these industries. Equally important, officials in developing nations sometimes believe that pollution and the attendant morbidity and mortality are short-term costs they must pay to industrialize and to improve their nation's health in the long run.

To these factors must be added the growing role of tobacco, which, in the developing nations as in the industrialized nations, is a major cause of chronic obstructive pulmonary disease. In addition, tobacco serves as a catalyst that increases the risks of other diseases (World Health Organization, 1998a). For example, compared with nonsmokers, smokers who have parasitic bladder infections are more likely to get bladder cancer, and smokers who work in uranium mines are more likely to develop leukemia. In addition, tobacco use promotes disease by taking a large bite out of small incomes. Smokers spend as much as 15 percent of family income in Brazil and as much as 10 percent in India on tobacco; in Egypt wives name their husband's smoking as the main reason their children go hungry (Nichter and Cartwright, 1991). WHO (1998a) estimates that by 2020, tobacco use will cause 11 percent of all deaths in developing nations (and 18 percent of deaths in industrialized nations).

Tobacco use has grown steadily in the developing nations since 1964, when the U.S. Surgeon General declared tobacco a cause of lung cancer and sales of cigarettes plummeted in North America. To maintain their profits, tobacco manufacturers (most of which are based in the United States) turned to the developing nations for new markets (Hammond, 1998; Nichter and Cartwright, 1991). Manufacturers now devote enormous sums to advertising tobacco in those nations. In countries where direct advertising of tobacco on television or radio is restricted, manufacturers instead sponsor cultural and athletic events, especially those oriented toward youths. For example, the Chinese national soccer league is now named the "Marlboro Professional Soccer League." Today, most tobacco users live in the developing nations.

Conclusion

In this chapter, we have seen how poverty and inequality—rather than overpopulation, tropical environments, lack of natural resources, or other biological factors—underlie the high rates of illness and death found in the developing nations. Consequently, reducing poverty and inequality in the developing nations should raise them to the health levels found in the industrialized nations. Conversely, the situation in the former Soviet Union demonstrates how an industrialized nation can slide toward health levels lower than those found in some developing nations (Feshbach, 1999; Feshbach and Friendly, 1992).

With the political and economic upheaval of the last 15 years, poverty has spread across the former Soviet Union and living conditions have deteriorated. The decline in income in these countries during the early 1990s exceeded that in the United States during the Great Depression and seems to have become permanent (Little, 1998). Increasingly across this vast territory, people live in inadequately heated, overcrowded, and ramshackle housing. Almost three-fourths of the water supply is polluted, with one-fourth

completely untreated. At the same time, the growing realization that the government can no longer guarantee citizens a minimum standard of living has demoralized people, encouraging many to find solace in drugs. Partly as a result, more than three times as many Russians die each year of acute alcohol poisoning as die from all sorts of poisoning combined in the United States (Wines, 1999).

To these problems must be added those caused by environmental degradation. In past decades, the Soviet Union expanded its economic base as rapidly as possible, with little regard for the human or environmental toll. The Soviet government rarely established and almost never enforced regulations designed to protect the environment from industrial pollution. As a result, industries wreaked far greater environmental havoc in the Soviet Union than in other industrialized nations, polluting farmlands and waterways beyond repair and leaving radioactivity, lead, and other dangerous toxins behind. Similarly, the emphasis on increasing agricultural yields as quickly as possible led to overplowing, which has caused perhaps permanent soil erosion, and to overuse of herbicides, chemical fertilizers, and pesticides, which have poisoned the water, the land, and food crops.

This environmental damage and downturn in living conditions is now taking its toll in human lives. As *New York Times* reporter Michael Specter summarized:

> There is almost no current demographic fact about Russia that would fail to shock: Per capita alcohol consumption is the highest in the world, nearly double the danger level drawn by the World Health Organization; a wider gap has developed in life expectancy between men (59) and women (73) than in any other country; the mortality rate of 15.1 deaths per 1,000 people puts Russia ahead of only Afghanistan and Cambodia among the countries of Europe, Asia and America (the rate for the United States is 8.8); the death rate among working age Russians today is higher than a century ago. (1997: A1)

Although government officials claim that infant mortality is now 16 per 1,000, informed observers believe that it is far higher. Compared with less-poisoned nearby regions, infant mortality is twice as high in agricultural areas where pesticides were used heavily. Meanwhile, **incidence** rates for numerous infectious diseases have increased. For example, in 1998 the former Soviet Union experienced the first large diphtheria epidemic in an industrialized nation in 30 years (Vitek and Wharton, 1998), and tuberculosis—which has a mortality rate thirty-four times higher in Russia than in the United States—is quickly becoming a more common cause of death than cancer and heart disease combined (Feshbach, 1999). In addition, the collapse of the social structure and economy has contributed to a proliferation of sexually transmitted diseases, with rates of both syphilis and AIDS skyrocketing. For all these reasons, life expectancy for males has fallen to only 58 years, compared to 75 in the United States (Population Reference Bureau, 2005).

In sum, no natural progression leads countries toward an increasingly healthy citizenry. Rather, as the political and economic fortunes of a country shift, and as the natural environment improves or declines, so too will the health of its population. Only by continued commitment to eliminating poverty and inequality and to protecting the environment can a nation guarantee that it will keep whatever health gains it has achieved.

Suggested Readings

Farmer, Paul. 1999. *Infections and Inequalities: The Modern Plagues.* Berkeley: University of California Press. A brilliant analysis of the link between disease and social inequality, written by a physician-anthropologist who for many years has divided his time between a clinic in inner-city Boston and one in rural Haiti.

Kidder, Tracy. 2004. *Mountains Beyond Mountains: The Quest of Dr. Paul Farmer, a Man Who Would Cure the World.* New York: Random House. An inspiring book about Paul Farmer, a Harvard professor and medical doctor who spends half of each year working in inner-city Boston and the other half in desperately poor, rural Haiti.

Lappé, Frances Moore, Joseph Collins, and Peter Rosset. 1998. *World Hunger: Twelve Myths.* 2nd ed. New York: Grove Press. Excellent summary of the issues. Lappé is one of the most important figures in this field.

Getting Involved

Amnesty International USA. 322 8th Avenue, New York, NY 10001. (212) 807–8400. www.amnesty-usa.org. Powerful international organization working to end torture and the death penalty and to obtain fair trials and freedom for persons jailed solely because of their beliefs, color, sex, ethnicity, language, or religion.

Freedom from Hunger. 1644 DaVinci Court, Davis, CA 95617. (800) 708–2555. www.freefromhunger.org. Provides small loans to women in developing nations to enable them to become economically self-sufficient and, in the long run, to reduce the chances that they or their families will experience hunger.

International Baby Food Action Network. 10 Trinity Square, Toronto M5G IBI, Ontario PO Box 781, Canada. (+1) 416-595-9819. www.ibfan.org. Educational, lobbying, and activist organization concerned with the sale of infant formula in both the developing and industrialized nations.

The Institute for Food and Development Policy. 398 60th Street, Oakland, CA 94618. (510) 654–4400. www.foodfirst.org/index.html. Popularly known as Food First, this nonprofit organization was founded in 1975 by Frances Moore Lappé and Joseph Collins to promote awareness of the social causes of hunger and poverty around the world.

Review Questions

How do social conditions limit the effectiveness of modern medicine in developing nations?

How do social factors contribute to illness in developing nations?

How do international politics and multinational corporations contribute to illness in developing nations?

How do the role and status of women contribute to illness in developing nations?

Internet Exercises

1. One way to identify the range of opinions on a given topic is to browse listservs or electronic bulletin boards. Listservs and bulletin boards are online discussion groups in which any eligible individual can post a question or an answer to someone else's question. (Some discussion groups are open to everyone, but some are open only to certain groups of individuals, such as members of an organization.) For example, there are a wide variety of opinions regarding female genital mutilation, and regarding what, if anything, westerners should do about it. Go to groups.google.com, and search for posts on female genital mutilation. A large list of posts will appear on your computer screen. Note that these posts come from a wide variety of discussion groups. (The name of the discussion group appears on the last line summarizing each post.) Identify and summarize three different views. How does the nature of the different discussion groups affect the nature of the questions posed and answers given?

2. Obtain current information from the nonprofit Population Reference Bureau's website (www.prb.org) regarding life expectancy at birth by country. Compare that information with the information contained in your textbook. Are there any countries in which life expectancy has changed markedly since this textbook was printed? If so, what might explain those changes?