



## Expanding Priorities — Confronting Chronic Disease in Countries with Low Income

Gerard F. Anderson, Ph.D., and Edward Chu, M.P.H.

In a ceremony held at the New York Public Library on June 26, 2006, Microsoft founder and global health philanthropist Bill Gates expressed his belief that “there is no reason we can’t cure the top

20 diseases.”<sup>1</sup> To achieve this ambitious objective, however, international health organizations will need to greatly expand their efforts, especially in low-income countries, to prevent and treat noncommunicable chronic diseases.

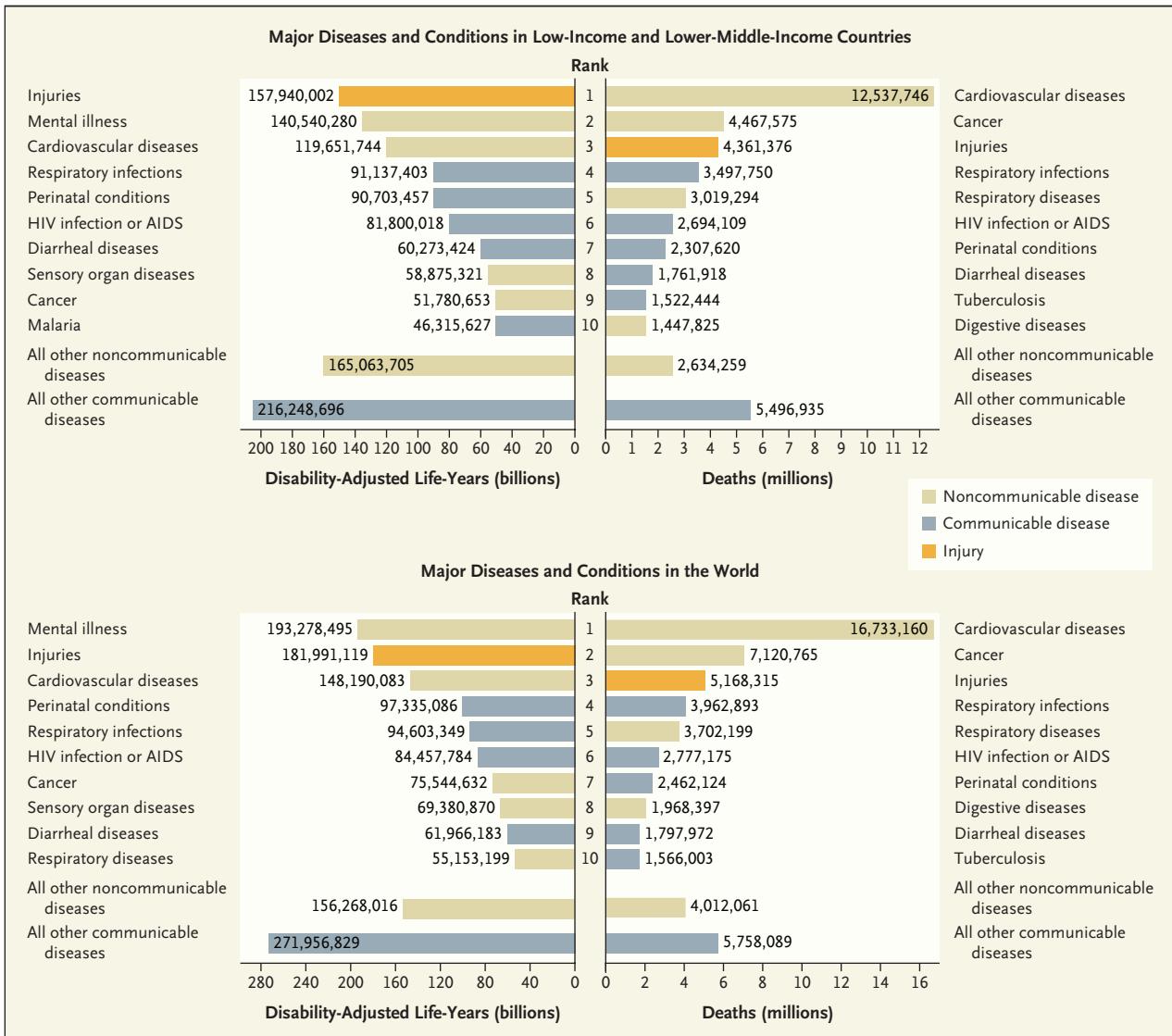
Although there are many ways to classify diseases and to evaluate the burden of disease, it is clear that by any measure, several noncommunicable chronic diseases have a place in the global top 20. For example, cardiovascular disease alone accounts for nearly 30% of all deaths worldwide and 10% of all years of

healthy life lost to disease (called “disability-adjusted life-years”; see graphs).<sup>2</sup> In low-income and lower-middle-income countries (countries with a per capita gross national product of less than \$3,255 in 2004), the corresponding figures are similar to the global ones — 27% and 9%, respectively.

Three infectious diseases — tuberculosis, human immunodeficiency virus (HIV) infection or the acquired immunodeficiency syndrome (AIDS), and malaria — have attracted the greatest attention from international donors, but together they are responsible for only 10% of the deaths in the

world (12% in low-income countries) and 11% of the disability-adjusted life-years (13% in low-income countries). Despite the fact that a substantial burden of disease in the world’s poorer countries is caused by noncommunicable chronic diseases, most international aid agencies have focused primarily on preventing and treating infectious diseases.

The rationale for this focus is multifaceted. In 1900, infectious diseases accounted for the greatest burden of disease in high-income countries. In the 20th century, thanks to immunization and improvements in sanitation, living conditions, and antibiotics, the prevalence of infectious diseases dramatically decreased in these countries. Given their success in this realm, it seemed logical for leaders of high-income countries



**Years of Healthy Life Lost (Disability-Adjusted Life-Years) and Deaths According to Disease or Condition.**

Perinatal conditions include low birthweight, prematurity, birth asphyxia, and birth trauma. Data are from the World Health Organization.<sup>2</sup>

to use their aid dollars to tackle infectious diseases in lower-income countries. In addition, there was an economic rationale for this investment: without resources from international donors, there would be no market for many effective vaccines against infectious diseases that now occur primarily in low-income countries. Some public health leaders also supported the focus on contagious diseases

that can cause major epidemics; the current worldwide effort to prevent a pandemic of avian influenza reflects the international concern about the spread of infectious disease. In contrast, no one has ever contracted diabetes or hypertension from another person.

Many international aid agencies seek approaches that promise a “permanent fix.” Investment

in vaccination programs, for example, can have a huge payoff if a disease is eradicated. These types of initiatives may be especially appealing to funders who prefer technological solutions and to policymakers who set funding priorities and want the type of permanent results that can accrue from effective vaccinations. In contrast, noncommunicable chronic conditions generally require on-

going treatment for many years, which may diminish their appeal to funders. Their chronic nature, however, magnifies their effect on families, since expensive long-term treatment consumes savings and often requires a family member to leave school or work to become a caregiver. The World Health Organization (WHO) estimates that countries such as China, India, and Russia could lose \$200 billion to \$550 billion in their gross domestic product during the next 10 years because of heart disease, stroke, and diabetes.<sup>2</sup>

Sympathy is also a powerful driver of public opinion and funding. When a celebrity holds a baby with AIDS, the heartrending photographs generate attention, compassion, and donations. A photograph of a 40-year-old man with hypertension would be far less compelling, even if we knew he was a father, husband, and primary breadwinner.

Moreover, a number of myths concerning noncommunicable chronic conditions may render them less compelling targets for funding. One such myth is that chronic diseases affect only rich countries. As the graphs show, noncommunicable chronic diseases have a substantial impact on low-income countries. A second myth is that chronic diseases affect only the elderly. A recent report from the WHO estimates that in 2005, one quarter of all people worldwide who died from chronic disease were younger than 60 years of age.

There is a common perception that the prevention and treatment

of chronic conditions are much more expensive than the prevention and treatment of infectious diseases. Two recent reports,<sup>2,3</sup> however, provide specific examples of low-cost, cost-effective interventions for noncommunicable chronic conditions. Yet because of the current focus on infectious diseases, interventions aimed at those diseases are often implemented despite their high cost in locations where the same money could finance more cost-effective interventions against noncommunicable chronic diseases. For example, the treatment of latent tuberculosis infection in persons without HIV infection is much more costly (\$4,129 to \$5,506 per disability-adjusted life-year averted) than the treatment of patients at high risk for cardiovascular disease with aspirin and generic beta-blockers (\$9 to \$273 per disability-adjusted life-year averted).<sup>3</sup>

Low-cost and cost-effective programs can improve outcomes and be sustained after the initial funding has ended. For example, a community-based partnership in the country of Georgia that was designed to improve the detection and control of high blood pressure succeeded in achieving target blood-pressure levels in 68% of participants. Treatment with a generic thiazide diuretic and a beta-blocker — which cost as little as \$7.50 per person-year — in participants who had hypertension resulted in a dramatic decrease in the rate of death due to cardiovascular disease. In Kyrgyzstan, a train-the-trainers program produced 63 Kyrgyz

trainers of physicians in family medicine and 64 trainers of nurses who went on to retrain nearly all of the country's roughly 3000 family physicians and 85% of its 4500 nurses. The training covered 37 different clinically relevant topics, including several noncommunicable chronic conditions. This program was implemented as a part of an overall effort by the Kyrgyz government to reform and update its health care system. Like the Georgian hypertension program, it cost about \$7.50 per person-year.

Clearly, there are already many effective and affordable interventions for the treatment and prevention of noncommunicable chronic diseases, and more can surely be developed. The World Bank and WHO reports contain numerous examples of cost-effective interventions from around the world.<sup>2,3</sup> International aid agencies should therefore devote additional resources to this effort if they wish to address global needs effectively.

Dr. Anderson reports receiving consulting fees from Pfizer Health Solutions and lecture fees from Cerner Corporation and Medtronic.

Dr. Anderson is a professor of health policy and management at Johns Hopkins Bloomberg School of Public Health, and Mr. Chu is a medical student at Johns Hopkins School of Medicine — both in Baltimore.

1. Gates: Buffett gift may help cure worst diseases. Associated Press. June 26, 2006.

2. Preventing chronic diseases: a vital investment — WHO global report. Geneva: World Health Organization, 2005.

3. Disease control priorities in developing countries. 2nd ed. Washington, DC: World Bank, 2006.

Copyright © 2007 Massachusetts Medical Society.