EDITOR'S NOTE

International Health: Purpose, Value, Challenges

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At the 2002 International Conference on Financing for Development, the United States pledged an increase in foreign assistance to developing countries for the first time in several decades. This policy shift reflects a trend of international engagement that has pervaded the economic, political, and health sectors of American life in the past year. Recent health threats of international origin have raised concerns about the implications of globalization for US public health. Threats of bioterrorism and surges in the incidence of emerging pathogens such as West Nile virus have helped underscore the domestic dangers of diseases from abroad.

Prior to this new swell of attention on health problems of global reach, however, industrialized nations were already allocating resources toward the control of pandemics such as HIV/AIDS, tuberculosis, and malaria. The urgency with which the commitments were made came in response to the devastation wrought by these diseases. The impact of HIV, in particular, is reflected by the grim fact that a 15-year-old living in a country with a 15% prevalence of HIV infection has a one-third lifetime risk of dying of AIDS. Although statistics such as these have made the mandate for global collaborations in international health clear, the path to stabilizing and improving the health of the world’s populations remains obscured.

In order to engage in the ongoing debates about US involvement in global health initiatives, it is necessary first to understand the reasons and aims for international health endeavors. This issue of MSJAMA examines the purpose, value, and challenges of conducting research and practicing medicine across continents. Robert Luo discusses the destabilizing influence of the HIV/AIDS pandemic on national infrastructures as well as family units. Paula Braveman addresses the stabilizing influence of the HIV/AIDS pandemic on national infrastructures as well as family units. Jeffrey Greenberg and Rebecca Mazar argue for more international training opportunities for US medical students in order to meet the increasing demand for global health professionals. Jennifer Singer and Paul Farmer describe a sustainable program to provide HIV treatment in Haiti, the poorest nation in the Western hemisphere.

Policymakers recently met in Johannesburg for the UN World Summit on Sustainable Development. Leaders in medicine, politics, and economics all echoed previous calls for affluent nations to make good on their past declarations to implement plans to improve the livelihood of all members of the global community. Action requires political will and financial commitment. But comprehension of the rationale for and barriers to the control of disease at an international level will be equally vital to the improvement of global health and stability.

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IN APRIL 2000, THE UNITED STATES GOVERNMENT DECLARED HIV/AIDS a threat to American national security, marking the first time ever a disease had been entrusted to the National Security Council.1 Less than 3 months later, the United Nations Security Council affirmed Resolution 1308, which delineated the dangers that HIV/AIDS posed to the “maintenance of international peace and security.”2 Most recently, at the 14th International AIDS Conference in July 2002, UNAIDS Executive Director Peter Piot noted the beginning of “a new era: the era of AIDS as a global political issue.”3 Amid all this discourse intertwining a virus with domestic and world affairs, it is paramount to understand the threat created by HIV/AIDS to political, economic, and personal security.

Security has been broadly defined as both the freedom from fear and the freedom from need.4 Under this definition, HIV/AIDS threatens the security of governments and economies around the world because of its ability to simultaneously endanger political stability and depress current levels of prosperity. According to one study, a significant decrease in life expectancy is the strongest risk factor for ethnic conflict, genocide, failure of fledging democracies, and revolutionary wars.5 In sub-Saharan Africa, for instance, average life expectancy rates will drop 25% in the next few decades from 59 years to less than 45 years, solely due to HIV/AIDS.6 Stable leadership may collapse if death rates continue to rise among public and private elites, including the police force and the military, where HIV prevalence rates have reached 60% in countries such as Angola and the Democratic Republic of the Congo.7

The damaging effects of HIV on countries’ economic infrastructures stems from the demographics of the populations it affects. In contrast to most adult diseases, the highest rates of HIV transmission occur during the most productive years of life, in both men and women, and in all socioeconomic strata. A direct correlation has been shown between a country’s HIV prevalence and reduction of its gross domestic product.8 Furthermore, agricultural productivity declines as workers die; farmers sell their livestock to cover medical and funeral expenses, and women leave the fields to trade sex for food in order to survive.4 Younger governments may be at greatest risk, including the former Soviet republics, where the next major epicenter for HIV is forming, and yet the least information exists on how HIV/AIDS will change the political and economic landscape there.9

The effects wrought by HIV/AIDS may help quantify the perils of this virus to world leaders, but to the over 40 million people currently living with HIV/AIDS, numbers fail to describe adequately how this disease affects their own security and that of their families. The absence of a vaccine or curative treatment, the growing infection rates in many countries worldwide, and the slow pace at which costly antiretroviral therapies are becoming available in HIV endemic zones all mean that mortality rates from AIDS will continue to rise in the near future.10 The repercussions of these deaths have already extended to a generation of over 13 million orphaned children who, without a family or social support structure, are burdened by economic and social disadvantages before reaching adulthood.8 Furthermore, people living with HIV/AIDS and their loved ones have been met with unmatched stigma and discrimination, and many continue to be physically attacked, chased out of their homes, and even stoned to death in communities all over the world.11

Threats to the security of individuals underlie the larger political and economic ramifications of this disease. When children, workers, and government elites alike are affected by HIV/AIDS, the financial and administrative security of countries consequently come into doubt, and the disease turns into a politicized issue. The discussions over the last 2 years have made it clearer how HIV/AIDS threatens not only the health security of individuals, but also the economic and political security of communities and countries. However, as Peter Piot has pointed out, “the issue is not just to draw attention to the problem, but to do something about it.”12 Still absent from the politicized discussions about HIV/AIDS is a full knowledge of how ameliorating this disease can significantly improve the personal, economic, and political security of families and countries at risk. The responses the world formulates against the HIV/AIDS pandemic in the coming years will determine if and how this question is answered.

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ALTHOUGH EQUITY IN HEALTH HAS BEEN UNDERSTOOD IN DIFFERENT WAYS, IN PRACTICAL TERMS ITS PURSUIT INVOLVES THE ELIMINATION OF SYSTEMATIC HEALTH DISPARITIES BETWEEN MORE AND LESS SOCIALLY ADVANTAGED POPULATION GROUPS. International efforts toward greater health equity generally focus on reducing the dramatic disparities between better- and worse-off nations; however, accumulating evidence also reveals large health disparities between social groups within countries of diverse per-capita income levels. In rich and poor countries, social advantage varies according to socioeconomic status, race/ethnicity, sex, age, and location. Unfortunately, available information on social disparities in health within most countries comes from time-limited research projects rather than ongoing information systems. Routine health information in most countries, particularly poor countries, is ill suited to identifying within-country health disparities.

Routine health statistics usually reflect population averages, which can hide large gaps between groups. For example, during 1994-1996, the US infant mortality rate overall was 7.6% per 1000 live births; however, among African Americans, it was 15.2% per 1000, more than twice the rate among whites (6.3% per 1000). The overall rate of stunted growth among Brazilian children during 1996 was 10.5%; among children in the lowest economic quintile the rate was 23.2%, 10 times that among the wealthiest quintile. Many lower-income countries now have upper and middle classes whose living conditions are increasingly similar to those in affluent countries, alongside large groups who remain deeply impoverished. Aggregate statistics mixing these subpopulations can obscure very disparate health and health care experiences.

Vital records in lower-income countries rarely contain socioeconomic information. Furthermore, the data available for assessing health equity in lower-income countries are often biased, painting a misleading picture of population needs. While of questionable quality in most countries, cause-of-death information is particularly unreliable for poor groups in poor countries. Births and deaths are substantially under-reported in many poor countries, particularly among disadvantaged groups. In many lower-income nations, births and deaths are registered only by location of occurrence, not residence. Because rural residents often go to cities to give birth and/or to die, vital statistics cannot be used to determine how birth outcomes or mortality vary by place of residence; thus, interventions cannot be targeted to the appropriate areas.

The challenges of obtaining and interpreting information on social inequalities in health have prompted some researchers to propose abandoning these efforts. The World Health Report 2000 measured what it called “health inequalities” by comparing the magnitude of differences in health between healthier and sicker—but not richer and poorer—individuals. By contrast, measuring social inequalities in health requires measuring differences in health between better- and worse-off social groups. The distinction has considerable practical importance. Only by comparing social groups can one understand how health is differentially distributed in a population, which groups to target for interventions, or how to allocate resources to achieve greater equity. Without information on social inequalities in health and how they change over time, one cannot assess the effects of policies that could influence equity in health.

Despite these challenges, promising approaches are available and being tested to assess social disparities in health in countries of all income levels. For example, some surveys on low-income countries already contain both health and social information, which permits estimates of social inequalities; socioeconomic information is also being added to other existing surveys. The Global Equity Gauge initiative is supporting development in some countries of new local, provincial, and national surveys that include both socioeconomic and health information; some even describe the perceived quality of available health services, disability, or quality of life [www.hst.org.za/hlink/equitypub/genga.htm]. Obtaining reliable population-based information on social disparities in health and health care within countries is challenging, but feasible—and a necessary step toward achieving equity in health.

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The humanitarian and economic development crises wrought by disease in low- and middle-income countries (LMICs) have garnered increased attention in the past decade. At the same time, increasing numbers of US medical students have become involved in international clinical, research, and public health projects. In 2001, 20% of graduating US medical students had completed an international clinical elective, compared to 13.5% in 1991 and 8.6% in 1985. However, few formal programs and dependable funding sources for global health training are available to young physicians and medical students.

The importance of fostering global health solutions stems from the grave and far-reaching consequences of disease in LMICs. Communicable diseases such as HIV/AIDS, tuberculosis (TB), and malaria currently account for 300 million illnesses and 5 million deaths per year, predominantly in LMICs. In addition, chronic diseases, such as cardiovascular disease and diabetes, cause death at an earlier age in LMICs than in established market economies, negatively affecting working-age populations. Aside from its medical impact, this increased disease burden has enormous political and economic consequences. According to a recent WHO study, better health care, indicated by lower rates of infant mortality, correlates with a higher rate of growth of per capita GDP.

For these reasons, international and domestic groups are mounting larger efforts to ameliorate the health problems of LMICs. The WHO’s Global Fund to Fight AIDS, TB, and Malaria has received $2 billion in commitments from public and private sector sources and has already pledged $616 million to 40 countries. In addition, many US leaders now agree that one important way to prevent terrorism is to foster stable democracies through sustained interventions such as increased access to effective health care. The federal government has accordingly increased its commitment to global health aid, specifically to fight the HIV/AIDS epidemic in sub-Saharan Africa.

Expanded programs to improve health care in other countries will require more physicians trained in global health. At present, however, few medical schools offer global health training as part of their curriculum and these programs and students receive little financial support. In 1993 only 35 of 120 US medical schools offered training in global health, with 19 schools offering training during third and fourth years. Most global health programs rely on internal institutional support, with no program reporting more than 30% of its funding coming from outside sources.

The few formal, funded programs that exist have reported a potential to change attitudes and to direct career choices of students and young physicians. The federally funded International Health Fellowship Program provides students with advanced preparation prior to departure for international clinical electives, placement at host sites, and a stipend to defray travel costs. Haq et al reported that this experience had a significant positive impact on student awareness of cultural and socioeconomic factors in patient care in both domestic and international settings. More than 90% of the participants intended to spend some time abroad during their careers. Similar programs for residents at Duke and Yale suggest that participants were more likely than nonparticipants to choose jobs in public health, or to work with disadvantaged populations.

Given the growing US commitment to improving health care in other countries, governmental and nongovernmental agencies will need to expand existing programs and create new ones to encourage physicians to pursue leadership roles in global health. Previous efforts to develop leaders in other medical fields have been successful and can serve as models. For example, a majority of medical students who have participated in the fully funded Medical Scientist Training Program go on to obtain faculty-level positions in biomedical research while maintaining active roles in patient care. Formal programs providing global health training and financial support could likewise enable talented individuals to pursue careers in global health.

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TWENTY YEARS INTO THE EPIDEMIC, AIDS HAS BECOME THE world’s leading infectious cause of adult death and the fourth leading cause of death worldwide. AIDS has killed more than 20 million people since 1981—an estimated 3.5 million in 2001 alone. In industrialized countries, mortality has decreased sharply with the advent of antiretroviral (ARV) therapy. In the United States, for example, the introduction of highly active antiretroviral therapy (HAART) has decreased AIDS-related morbidity and mortality by up to 90%. In some treatment settings, including Brazil, there is also evidence of decreased HIV transmission. In 2002, however, the vast majority of people living with HIV do not have access to these medications: less than 4% of the 6 million people in the developing world in need of ARV therapy are being treated.

The availability of ARV therapy in developing countries has become a contentious public health and human rights issue. Many experts have argued that introducing ARV therapy in settings of great poverty should not be a priority, claiming that it is neither cost-effective nor feasible. These conclusions are based on assessments of established treatment programs, but rather on projected drug costs of a handful of nascent projects. In fact, very little operational research has been conducted to examine strategies to deliver ARVs in resource-poor nations, despite the fact that these countries have the largest burden of HIV. It is important to note that Brazil and other countries in which ARVs are used widely have robust health infrastructures, whereas many countries in Africa (and in parts of Latin America) have recently seen significant declines in already weak infrastructures. The reluctance to treat HIV in the developing world stems, in part, from the argument that the advanced medical technology, such as CD4 cell count and viral load measurements, available in the United States and other industrialized nations, is a prerequisite for a successful HIV treatment program. Although many experts believe this precludes the creation of quantifiably successful programs in resource-poor settings, we have established one in rural Haiti.

Haiti is the poorest country in the Western hemisphere and one of the poorest in the world. It is also the most HIV-affected nation in the hemisphere. More than 6% of the adult population is HIV positive; the prevalence is twice as high in certain poor urban areas. More than 15 years ago, Partners In Health, a nonprofit dedicated to the remediation of inequalities in access to care, and its Haitian sister organization, Zanmi Lasante, began a modest AIDS-prevention effort in Haiti’s Central Plateau, one of the country’s poorest regions. Our initial efforts—from the late 1980s until 1995—were focused largely on prevention. We developed a voluntary counseling and testing (VCT) program, promoted and distributed condoms free of charge, and conducted information and education campaigns in the rural communities in which many Haitians live. Although there is reason to believe these prevention efforts were met with some measure of success—seroprevalence in the prenatal clinic has remained stable among women from the region—the general clinic continued to receive a growing number of patients with advanced HIV disease. More than 80% of these patients had lived in urban Haiti, where they had likely been infected. Many were returning to their home villages for care—or to die.

The severity of the situation prompted our initiative to integrate community-based prevention and care efforts once effective drugs became available. In 1995-1996, we introduced zidovudine to our prenatal-clinic formulary. Prior to this, a majority of young women who came to this clinic declined free VCT services; however, once this effective method of preventing mother-to-child transmission became available, more than 90% of women offered these services accepted them. In 1998, we launched the “HIV Equity Initiative” in order to complement prevention efforts with ARV treatment for infected individuals who would have died, in our opinion, without these drugs. Because measurement of CD4 cell counts and viral loads is not available in rural Haiti, a clinical algorithm—based on criteria that include the nature and frequency of opportunistic infections, weight, neurologic status, and severe hematologic abnormalities—is used to identify those patients in greatest need. Currently, some 200 of the more than 2100 HIV-positive patients followed in our clinic receive ARV therapy. To ensure adherence, use of ARVs is supervised by community-based health workers, called accompagnateurs, who visit patients daily (this strategy is termed directly observed therapy [DOT]-HAART). The program also provides a modicum of financial and social support to ensure adequate nutritional intake for both the patients and their families.

In assessing the efficacy of HIV therapy, measurement of viral loads and CD4 cell counts has become the standard of care in industrialized countries but is not possible in most developing countries. Our experience in Haiti allows us to suggest other indices that may permit a valid assessment of the efficacy of an integrated HIV prevention and care project, or even a nascent national AIDS program in a poor country. First, clinical response to therapy can be measured indirectly by following weight, symptoms, and ability to return to activities of daily living. In rural Haiti, these activities are focused around farming and caring for children. We estimate that more than 90% of DOT-HAART patients are able to resume such activities within 3 months of initiating DOT- HAART.
Second, a reduction in mortality can be measured as long as patients are being monitored daily by accompagnateurs in our project. In rural Haiti, mortality among ambulatory patients who receive DOT-HAART has declined dramatically—since the program began, we have not had a single death among patients receiving ambulatory DOT-HAART as described above. Case fatality rates among HIV patients not receiving antiretroviral therapy remain high, as they do elsewhere where these medications are not available.15  

Third, changes in hospitalization rates can also be measured easily. By the early 1990s, more than 25% of all hospitalizations in the Zanmi Lasante clinic were HIV-related. In the past 2 years, this proportion has decreased by almost half. Patients receiving DOT-HAART are rarely hospitalized; most HIV-related hospitalizations are of patients who are not receiving DOT-HAART.15 Encouragingly, in our experience, these clinical indices match criterion standard laboratory findings. We have been able to obtain assays of viral load and CD4 counts at a Boston hospital for certain patients in a subset of 60 DOT-HAART patients who were doing well clinically, over 80% had undetectable viral loads (less than 400 copies in peripheral blood).18

In addition to these clinical indices, simple serosurveys are already available to many community health centers in resource-poor settings. One way to gauge secular trends in burden of disease is to follow seroprevalence within prenatal clinics; as noted, at Zanmi Lasante it has remained unchanged—between 4% and 5%—over the past 4 years.18

Measuring rates of seroprevalence over time is an indirect way of measuring burden of disease in young adult populations. Introducing ARVs may also enhance prevention efforts in other ways. As we noted, adding zidovudine to the formulary of a prenatal clinic quickly led to an increase in the proportion of women requesting or accepting VCT. Similar trends have been registered in each of the Zanmi Lasante clinics since the introduction of ARVs. The medical staff has also been galvanized by the clinical improvement of their patients: the negative impact on the morale and performance of medical professionals, forced to stand by as patients with advanced HIV disease die, is only now being documented.19

Understanding the lived experience of patients who were near death upon initiating ARV therapy is an equally important means of assessing the impact of an integrated prevention and care project. We close with the case of a patient who was born in a rural village to a large family of peasant farmers, but later moved to Port-au-Prince to continue her primary education; she returned home several years later, HIV-positive and with 2 small children. For almost 10 years, her therapy was limited to treatment of opportunistic infections, which appeared with increasing regularity. By mid-1999 she was too weak to leave her bed, sick with life-threatening chronic enteropathy. In November 1999, she began therapy with zidovudine, lamivudine, and indinavir. Her diarrhea disappeared within 2 weeks, and she gained 26 pounds in the first 5 weeks of treatment. In 2002, she remains asymptomatic and works as an HIV outreach worker.

Like many of our patients in Haiti, she has strong feelings about access to ARVs: “What can I say? The medicines are eloquent enough. What they have done for me is amazing. Everyone was shocked when I went home...I was so sick before I started treatment. I was skinny, and the medicines made me big again. I was so weak I could not walk, and now look at me.”37

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