UNITED NATIONS

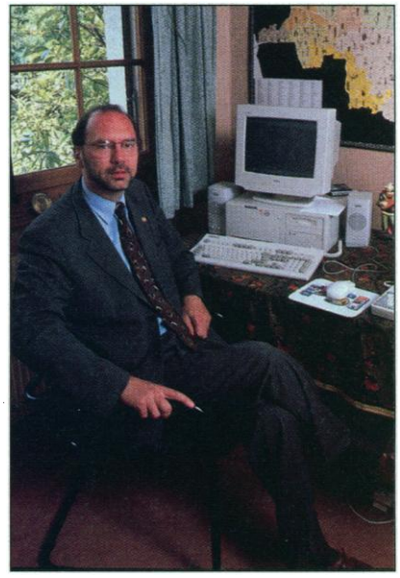
Global Program Struggles to Stem the Flood of New Cases

GENEVA—Peter Piot has a seemingly impossible job. As executive director of the United Nations' special program on AIDS (UNAIDS), he is in charge of the international community's global response to the epidemic. With a staff of 130 and a budget of just $60 million a year, Piot is seeking to turn the tide against a disease that has killed more than 11 million people over the past 2 decades and is relentlessly extending its reach. Not only does he have to contend with the labyrinthine political, social, and financial vagaries of the U.N. system, but this balancing act has been made doubly difficult by the fact that his appointment coincided with a major organizational shake-up in the U.N.'s AIDS activities (*Science*, 25 November 1994, p. 1312). When the dust finally settled, the World Health Organization's Global Programme on AIDS (GPA), which was created in 1986, had been replaced by UNAIDS, a program jointly sponsored by six U.N. agencies, including WHO.

The new program, and Piot's appointment to run it, signaled a new era in the global battle against AIDS. Many believe the effort had been floundering since the GPA's first director—Jonathan Mann, a charismatic and outspoken epidemiologist—resigned in 1990, protesting what he called a lack of commitment to fighting the disease on the part of WHO's former director-general, Hiroshi Nakajima. Mann's replacement, Michael Merson, a public health expert who had spent much of his career at WHO, was widely criticized for unimaginative leadership. Dissatisfaction with GPA's overall performance finally sparked the chiefs of AIDS programs in other U.N. agencies to insist on an overhaul. To many observers, Piot—a soft-spoken Belgian microbiologist who cut his teeth fighting Ebola fever and other emerging diseases in Africa—brings the right blend of pragmatism and moral indignation to the job.

"In the early days there was great hope and desire to put programs into place to slow the epidemic," says Joseph McCormick, head of the epidemiology and biostatistics unit at the Pasteur Institute in Paris. "The job of the director was to convert the skeptical and the uninformed, which needed charismatic leadership. Today the job is different, and in some ways more difficult. ... It is one of convincing [political leaders] to continue to provide resources to a program for which the evidence of progress is limited."

To be sure, UNAIDS and its predecessor have not turned the epidemic around. In fact, UNAIDS's epidemiologists estimate that 5.8 million people were newly infected by HIV, the virus that causes AIDS, in 1997 alone, and the total number of HIV-infected people is now put at more than 30 million—a much higher figure than previously thought (see sidebar). In the face of this onslaught, Piot has had to be content with more modest victories, flanking operations against an enemy whose strongest allies are poverty and the continuing complacency of many political leaders. "The biggest disappointment is the lack of political commitment in many countries, both rich and poor," Piot told *Science*. "Things are happening under people's eyes, and they don't see it." Moreover, Piot is working with reduced resources. The $60-million-per-year core budget is about 15% less than GPA had in its last years, and the staff has been trimmed considerably: GPA's roughly 275 professional employees were cut to less than half that number when UNAIDS was created, and the majority of those who remain are posted in developing countries rather than in Geneva.



P. ROBERT/SYGMA

In the hot seat. UNAIDS chief Peter Piot wants to help AIDS patients in the poorest countries.

These economy measures reflect the desire of the sponsoring U.N. agencies to spend less supporting the day-to-day operating costs of national AIDS programs. "They made the decision that we would not be a funding agency, distributing money," Piot says. Instead, the program aims to coordinate the work of the six U.N. agencies in each country by setting up AIDS "theme groups," which bring their diverse activities under a single strategic plan. The theme groups provide technical aid to health authorities and nongovernmental organizations involved in battling the AIDS epidemic, as well as serve as advocates for AIDS prevention and education in each country. A cornerstone of this effort is a series of manuals published by UNAIDS, called the Best Practice Collection, which provide detailed technical advice on subjects ranging from blood safety to HIV testing to the use of the female condom. UNAIDS is also helping local authorities develop the necessary health infrastructure for expanded use of antiviral therapies, especially the treatment of HIV-positive pregnant women with the antiviral drug AZT, now that clinical trials have demonstrated that even short courses of this drug can sharply cut transmission of HIV to their infants.

"UNAIDS is a very different animal than GPA was," says Thierry Mertens, chief of WHO's AIDS and sexually transmitted diseases unit. And the reduced budget, Piot says, is not entirely a bad thing. Indeed, when he took over he discovered that more than half the money GPA had allotted for Africa had been returned unspent. "The need was there, but the money couldn't be absorbed. The AIDS programs were not well organized or managed." Indeed, getting the six U.N. agencies—whose priorities range from UNICEF's concern for the welfare of children to the World Bank's preoccupation with development issues—to work in concert in each country is one of the trickiest parts of Piot's job. "This is like walking six cats on a leash," says Mann, now dean of Allegheny University School of Public Health in Philadelphia. "Peter deserves a lot of credit for entering into the complex U.N. institutional environment and accomplishing what he has during the past few years."

Mann also praises Piot for continuing to stress, in his speeches and press conferences, that socially and politically vulnerable groups are most at risk from HIV infection, a point that Mann hammered home repeatedly as GPA director. "Peter has really strengthened the connection between AIDS and human rights," Mann says. But Piot, who agrees that there is an "ethical and moral imperative to deal with AIDS," has focused much of his efforts on making UNAIDS a "broker" to get other groups and organizations—especially private industry—to do more about the disease. "We are 17 years into this epidemic," Piot says. "It's not enough to have morality on our side. There is also an economic reality. The price of not acting is going to cost us millions in human lives but also billions in dollars. We have to appeal to people's enlightened self-interest."

HIV Incidence: 'More Serious Than We Imagined'

PARIS AND GENEVA—Last November, Peter Piot, executive director of UNAIDS, the United Nations' special program on the AIDS epidemic, delivered some bad news to a packed press conference in Paris: Revised estimates of the spread of HIV indicated that some 16,000 people worldwide were being infected with the AIDS virus each day, nearly twice as many as previously thought. "The AIDS epidemic is not over," Piot said. "It is more serious than we ever imagined."

Why were previous estimates so far off? In fact, for much of the world the numbers were pretty much what had been projected. But when epidemiologists tallied up the figures for sub-Saharan Africa, they got a nasty shock. In some highly populous countries, such as South Africa and Nigeria, the rate of HIV infection was at least twice as high as expected. The new estimates indicated that one in every eight adults was infected in South Africa, while in Botswana and Zimbabwe infection rates had reached at least 25%.

"We knew that we were underestimating the epidemic," says Bernhard Schwartländer, UNAIDS's senior epidemiologist. "But if you had talked to epidemiologists several years ago, you wouldn't have found anyone who believed that these levels could be reached." Schwartländer and his collaborators—who include epidemiologists at the World Health Organization (WHO), the U.S. Bureau of the Census, and the Harvard School of Public Health—were turned into believers by new HIV monitoring data that had not been available the last time similar estimates were made by WHO in 1995.

Unlike AIDS patients who have obvious symptoms, most asymptomatic HIV-infected people have no idea that they are harboring the virus. Researchers must therefore rely on infection rates from smaller groups that have been tested for HIV—for example, pregnant women attending prenatal clinics—and extrapolate to the larger population using various fudge factors that correct for differences in age and the generally lower rates in rural versus urban areas.

In 1995, this kind of data was very sketchy for many African countries. Epidemiologists had to take what information they had and plug it into a computer model that predicted the course of the epidemic in the entire African region. This model was based largely on the dynamics of the epidemic in Uganda, which has a rigorous system of HIV surveillance. Fortunately for the Ugandans, but unfortunately for epidemiologists, the epidemic in Uganda has begun to plateau in recent years, and that led to incorrect assumptions about the course the epidemic would take in other sub-Saharan countries. In South Africa, for example, HIV infection among pregnant women had been consistently low through 1992, the last year for which data were available when the 1995 figures were released. But in reality, the epidemic was just starting to skyrocket in South Africa in the early 1990s, a fact that was painfully clear when more recent data became available.

Because HIV monitoring in many African countries has improved in recent years, Schwartländer and his colleagues were able to plug this more detailed information into computer models of the epidemic in each country rather than rely on regional models. The results left them astounded. "The doubling of incidence caused us some sleepless nights," Schwartländer says. The researchers went back over their data to see if they had made any mistakes. But the estimates held up. "The new figures are shocking, but this is what we have to believe." **–M.B.**

A SAMPLE OF UNAIDS'S NATIONAL HIV INFECTION ESTIMATES THROUGH 1997

Country	Infected adults (ages 15–49)	Percentage of adult population
South Africa	2,800,000	12.8%
Nigeria	2,200,000	4.1%
Cambodia	120,000	2.4%
Honduras	41,000	1.46%
Brazil	570,000	0.63%
Ukraine	110,000	0.43%
Mexico	180,000	0.35%
China	400,000	0.06%

SOURCE: UNAIDS

Thus while Piot travels the world trying to raise the alarm against the epidemic, his most concrete achievements have often been the result of behind-the-scenes negotiations, particularly with industry. One of his proudest accomplishments, Piot says, is the deal he struck with the Female Health Company of Chicago, the world's sole manufacturer of female condoms, to lower its prices in the developing world. The company agreed to charge less than $1.00 for the condom in poor countries, compared to its price of up to $3.00 in the industrialized world. Piot has also worked with the pharmaceutical giant Glaxo Wellcome to make the anti-HIV drug AZT available at a reduced price in developing countries, particularly to prevent transmission of the virus between pregnant mothers and their children.

It is these kinds of concrete actions that have won appreciation for UNAIDS in many developing countries, where the fine points of U.N. politics might not inspire the same fascination as in New York or Geneva. Rubaramira Ruranga, an HIV-positive Ugandan AIDS activist, says that "UNAIDS helped to insure that Uganda had access to [combination] anti-HIV drugs. We are one of the few countries in Africa to have them." Although the price of the drugs for Ugandans is high—costing each patient about $1500 each month—Ruranga, who also works as an administrator at Kampala's Joint Clinical Research Center, adds that UNAIDS is currently negotiating with drug companies to greatly reduce the price of the drugs so that many more patients can receive them. And Natth Bhamarapravati, chair of the HIV vaccine subcommittee of Thailand's National AIDS Commission, says that an expert panel organized by UNAIDS to advise his country on the wisdom of allowing the U.S. biotech company VaxGen to conduct vaccine trials "has helped Thailand to attain the maturity for making [its own] decisions. ... It has helped us to be free from exploitative as well as paternalistic approaches" (*Science*, 30 January, p. 650).

Despite these successes, Piot says he remains preoccupied about the fate of the poorest countries afflicted by the AIDS epidemic, which cannot afford AZT, let alone sophisticated combination therapies: "This is my single biggest concern. For the least developed countries, where health expenditures are $10 or $20 per capita per year, at this point I don't see a solution. For all the other problems linked to HIV, I see the road and I see which direction to go, but for this problem I don't see it." Until he does see the way, Piot says, in the face of the enormous tragedy brought by the AIDS epidemic, he is determined to remain realistic: "We should never make promises that we cannot fulfill."

–Michael Balter