

Conquering AIDS

WILL THE WORLD SPEND ENOUGH TO STOP THE SPREAD OF HIV/AIDS?

Attendees at an international AIDS conference in Washington, D.C., this summer celebrated three global statistics: Since 2002 the AIDS-related death toll has fallen by 10 percent, new HIV infections are down 13 percent and more than 8 million people in low- and middle-income countries are receiving HIV drug therapy — a 20-fold jump since 2003. Conferees also heard a striking message: Recent breakthroughs in prevention provide an unprecedented opportunity to halt the deadly pandemic in its tracks. According to scientists, early treatment of HIV-infected patients can virtually eliminate the risk of transmitting the virus to sexual partners, and treating HIV-negative people at high risk of contracting the virus reduces infection rates. But adopting those two strategies globally would be hugely expensive, and nearly 8 million HIV-positive patients eligible for drug therapy now aren't getting it due to lack of funding. Some physicians, policy makers and AIDS activists also question giving symptom-free and virus-free people drugs with potentially toxic side effects.



Demonstrators in New York City last December call for a small tax on financial transactions, which they say could raise hundreds of billions of dollars — enough to virtually halt the spread of HIV/AIDS. Although the U.N., AIDS advocacy groups and the European Commission support such a levy, the U.K. and United States oppose it.

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Conquering AIDS

BY BARBARA MANTEL

THE ISSUES

Yudelsy García O'Connor was Cuba's first known baby born with the human immunodeficiency virus (HIV), the pathogen that causes AIDS.* Her father probably was infected with the virus while serving as a soldier in Angola and then passed it to García's mother. Both parents have since died of AIDS.

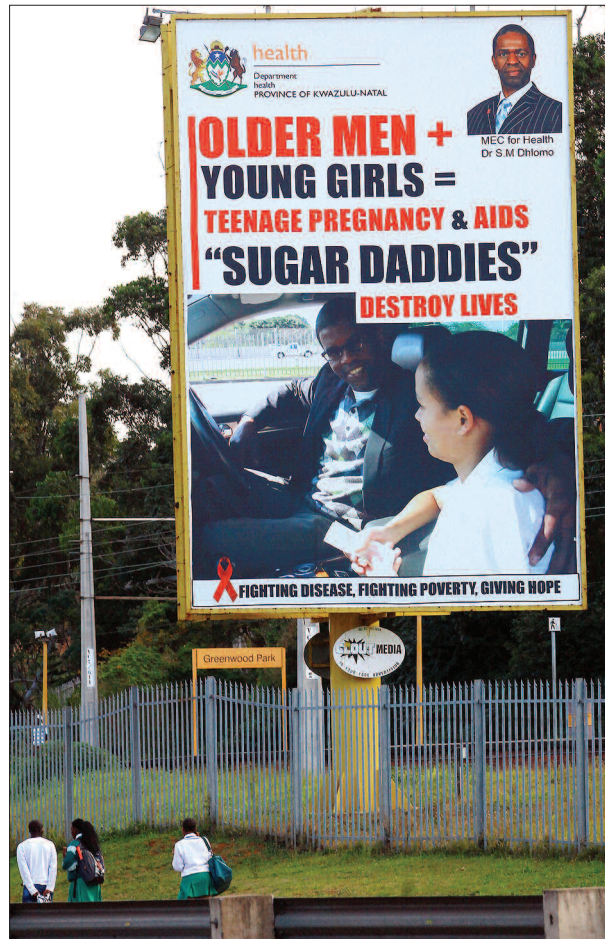
But García remains healthy. Now 25, she lives in a one-room shack in Aguacate, an hour's drive from Havana, and is hoping to have children. ¹

"I'm not afraid of death. I know it could knock on my door. It comes for everyone," she recently told *The New York Times*. "But I take my medicine." ²

Since drug therapy was developed in the mid-1990s, an HIV diagnosis is no longer a death sentence. People with HIV who start timely medication with anti-retroviral drugs — García started at age 7 — can expect a near-normal life span. As a result, the number of people dying worldwide from AIDS-related causes has fallen by 10 percent since 2002. ³

Few Cubans have died of the disease, and Cuba has one of the world's lowest infection rates. The government has vigorously attacked the spread of HIV, sometimes with controversial mea-

* Acquired Immunodeficiency Syndrome (AIDS) is the final stage of HIV infection. People at this stage have badly damaged immune systems, which put them at risk for opportunistic infections such as certain cancers and pneumonia.



A billboard in Durban, South Africa, warns young women that having sex with older men can lead to pregnancy and AIDS. Experts are especially concerned about sex between younger women and older men who have had multiple sex partners and are at higher risk of having HIV. Such link-ups help explain why about 60 percent of the HIV cases in southern Africa — which has the world's highest infection rates — are female.

asures such as quarantining victims, but also by handing out free condoms, providing safe-sex education for teens, widely testing for HIV and rigorously tracing the sexual contacts of anyone who tests positive. ⁴

While few countries have had Cuba's success, the number of new HIV cases worldwide — 2.7 million — is down 13 percent since 2002. ⁵ But prevention and treatment are expensive, and Cuba — along with 80 other low- and middle-income countries — has increased domestic spending on AIDS by more than 50 percent in the past

five years. In 2011, developing countries spent a total of \$8.6 billion on AIDS prevention and treatment. ⁶

Cuba also has had foreign help. Two of García's medicines are imported and paid for by the Geneva-based Global Fund to Fight AIDS, Tuberculosis and Malaria — a public-private partnership that collects and disburses international funds.

Yet, the total international commitment of AIDS assistance to developing countries has been stagnant at about \$8.8 billion annually since 2008, after growing more than sixfold during the previous six years. ⁷ And, while more than 8 million HIV-positive people in low- and middle-income countries are receiving antiretroviral therapy — a dramatic 20-fold increase from eight years earlier — nearly the same number of eligible people go without. ⁸ Treating them would cost another \$7 billion a year. ⁹

In July, as more than 23,000 researchers, doctors, drug makers, AIDS workers, policy officials and people living with HIV gathered at the week-long 19th International AIDS Conference in Washington, D.C., many of the speakers had the same message: Without a huge boost in international and domestic AIDS spending, the world will squander an unprecedented opportunity to take control of the pandemic offered by recent breakthroughs in HIV prevention.

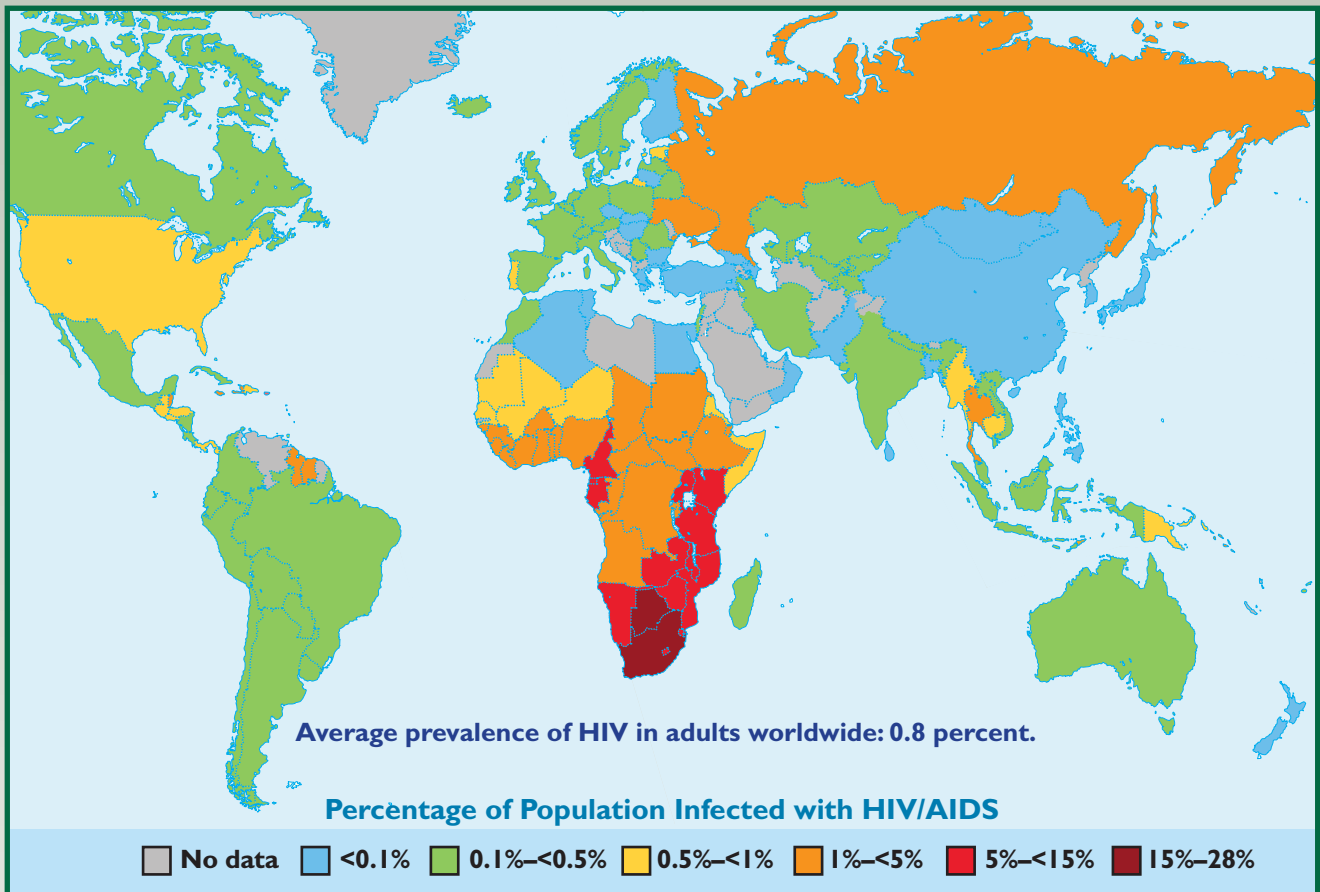
"Now I want you to close your eyes. Listen to my words. We can end AIDS," said Michel Sidibé, executive director of the Geneva-based Joint United Nations Programme on HIV/AIDS (UNAIDS), at the conference's opening

AFP/Getty Images/Rajesh Jantial

Africa Has Two-Thirds of World's HIV Cases

Of the 34 million people around the globe infected with HIV — the virus that causes AIDS — two-thirds live in sub-Saharan Africa, with the highest infection rates in southern Africa. Since 2002 the global AIDS-related death toll has fallen 10 percent and new infections are down 13 percent, due largely to prevention and expanded treatment with antiretroviral drugs. But the number of people in Eastern Europe and Central Asia infected with HIV, which is spread through contact with contaminated body fluids, has grown by nearly 25 percent since 2007, driven largely by drug users sharing contaminated needles.

Prevalence of HIV in Adults, 2009



Source: "2010: A Global View of HIV Infection," UNAIDS, www.unaids.org/documents/20101123_2010_HIV_Prevalence_Map_em.pdf. Map by Lewis Agrell

session. "But this opportunity will evaporate if we do not act . . . and history will never forgive us." ¹⁰

The world economy remains weak, however, and there is wide disagreement on how to raise such funds. Advocacy groups are proposing a tax on financial transactions, which the United Kingdom and the United States op-

pose. Others suggest that heavily affected countries impose "sin" taxes on alcohol and cigarettes, but some doubt whether local governments have the will. Meanwhile, some of the new prevention breakthroughs are spurring controversy as well as hope.

One such proposal — "treatment as prevention" — would be a significant

change from current practice. Now, antiretroviral drugs are typically withheld until an HIV-positive person shows signs of a compromised immune system — an indication that the patient is on the road to developing AIDS — because the medicines have significant side effects. But a study published last year showed that early drug treatment

of the HIV-infected partner in heterosexual couples could virtually eliminate the chance of passing the virus to the uninfected partner.¹¹

“It is a transformational moment in the course of this epidemic,” said Kevin Cranston, head of infectious disease control at the Massachusetts Department of Public Health.¹²

But ramping up HIV testing and giving drug therapy immediately after positive test results would be hugely expensive. “Is it worth paying for? The answer is yes,” said Harvard researcher Rochelle Walensky. She and her colleagues analyzed treatment as prevention using data from last year’s study and making assumptions about drug prices, lives saved and behavioral variables.¹³ They concluded it was a “triple winner.” HIV-infected patients were healthier, their partners were often protected from infection and the strategy was “very cost-effective.”¹⁴

Still, skeptics ask whether it is ethical to treat people who are not yet ill, when so many whose immune systems already are compromised are not receiving treatment. Others raise concerns that people receiving early drug therapy might not stick with it, risking the development of drug-resistant strains of the virus. And no one knows whether early treatment would work among drug users, sex workers and men who have sex with men.

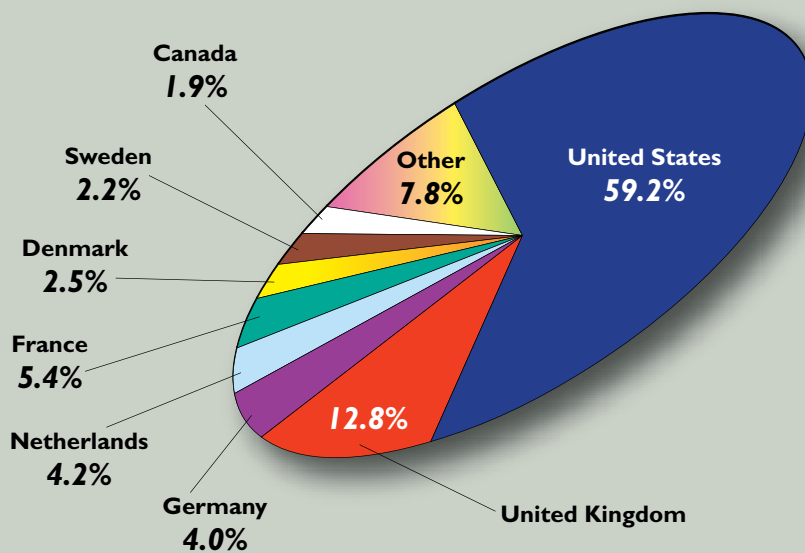
But Zunyou Wu, director of China’s National Center for AIDS/Sexually Transmitted Disease Control and Prevention in Beijing, wants to try. China must implement treatment as prevention, he said, because several high-risk groups in China, including men who have sex with men, are reluctant to use condoms. These groups “have knowledge but cannot change their behavior,” Wu said. “We need a biological strategy.”¹⁵

It’s a decision that every country must make based on its own experience with the AIDS pandemic, since the routes of transmission and the

U.S. Provides Most AIDS Assistance

Nearly 60 percent of the roughly \$8 billion in AIDS assistance donated by the international community in 2011 came from the United States. In the wake of the worldwide economic crisis, many developed countries have curbed their AIDS donations, causing some poor countries to cut services due to lack of drugs or to charge for antiretroviral therapy, which previously was free.

Share of International AIDS Assistance, 2011



Source: Jennifer Kates, et al., “Financing the Response to AIDS in Low- and Middle-Income Countries: International Assistance From Donor Governments in 2011,” UNAIDS, p. 6, www.kff.org/hivaids/upload/7347-08.pdf

groups affected vary tremendously.

Sub-Saharan Africa continues to be the hardest-hit region. It is home to only 12 percent of the world’s population but two-thirds of the 34 million people living with HIV. More than 90 percent of the world’s HIV-infected children live in sub-Saharan Africa, and the epidemic has orphaned more than 14 million of the region’s children. Women comprise 59 percent of people living with HIV and nearly 80 percent of young people with HIV.¹⁶ Amid such sobering statistics, there is some good news: The number of new HIV infections has stabilized or is declining in many African countries.

Although nearly 5 million Asians are living with HIV, new infections

have declined in East Asia by 25 percent since 2001. Sex work is the key driver of transmission in many areas, and 65 percent of Asians living with HIV are men.¹⁷

The proportion of Latin America’s 1.4 million people infected with HIV who are male is the same as in Asia, but the epidemic in Latin America is mostly concentrated among men who have sex with men. New HIV infections have remained relatively stable in the region, as well as in Western Europe and North America.¹⁸

North America has the same number of people living with HIV as Latin America — 1.4 million — and most are in the United States, where slightly more than half are men who have

HIV Incidence Climbs in Eastern Europe

Sharing of dirty needles by drug users blamed.

The number of people newly infected with HIV is declining globally, but in Eastern Europe and Central Asia it has grown by nearly 25 percent since 2007, driven largely by drug users sharing contaminated needles. In fact, nearly a quarter of the world's estimated intravenous drug users live in the region.¹

"Opiates are flying in from Afghanistan," says Jack Dehovitz, a professor of medicine at Downstate Medical Center of the State University of New York (SUNY) in Brooklyn and director of a program to train Eastern European health-care professionals in HIV prevention. "And there has been a lot of economic and social dislocation, with young people moving to cities. All this combines to allow the emergence of substance use first. HIV inevitably follows."

Most of the newly infected live in Russia and Ukraine, which have twice as many people living with HIV as Western and Central Europe combined.²

"Russia is killing its people!" Sergey Dvoryak, director of the nonprofit Ukrainian Institute on Public Health Policy in Kiev, said at July's International AIDS Conference in Washington.

Dvoryak and others attribute the rise in infections in part to Russia's ban on opioid substitution therapy — providing addicts with a daily oral dose of methadone, a drug substitute. Methadone treatment has been proven to effectively stabilize the lives of drug users and reduce the spread of HIV.

"Methadone should be legal," says Dmitry Lioznov, head of the Center for Chronic Viral Infections Research at Pavlov State Medical University in St. Petersburg. Substitution therapy stops addicts from using needles, allows them to work and brings them into clinics where they can be tested for HIV and receive treatment if needed, says Lioznov.

"But there is a strong lobby against allowing substitution therapy [at] the Ministry of Health. They see it as just changing one drug for another" and not a true treatment for addiction, says Lioznov. "The Russian specialist must treat drug addiction with psychology and other methods."

While substitution therapy is legal elsewhere in Eastern Europe and Central Asia, it is not widespread. In Ukraine, for example, only about 2.2 percent of the estimated 290,000 intravenous drug users receive substitution therapy.³

Stigma and discrimination help to keep the numbers receiving substitution therapy low, experts say. So does a lack of funding. For example, Ukraine spends next to nothing on methadone programs, focusing instead on HIV/AIDS treatment and the prevention of mother-to-child HIV transmission.⁴ Pilot methadone projects in Ukraine are funded by foreign donors, such as The Global Fund to Fight AIDS, Tuberculosis and Malaria — a public-private partnership that disburses international funds to fight the three diseases.

"Ukraine is a classic example of the Global Fund paying for some methadone therapy, but it's not nearly enough," says Dehovitz. The fund's finances have been strained due to the global recession, threatening the future of regional methadone programs.

Needle exchanges — another potent tool to prevent HIV infection — also are not widely used in the region. Needle exchanges allow drug addicts to swap their used, and potentially HIV-contaminated, syringes for sterile equipment. In Amsterdam, Netherlands, a center of drug use in Northern Europe, needle exchange programs have helped bring the incidence of HIV nearly to zero.⁵ But exchanges work only if enough new syringes are distributed to each addict.

sex with men. By race or ethnicity, African-Americans make up 44 percent of Americans living with HIV.¹⁹

Unlike the rest of the world, Eastern Europe and Central Asia have seen a rapid increase in HIV incidence in the past four years, driven largely by injecting drug use. Roughly 1.5 million people in the region have HIV, with Russia and Ukraine having the largest epidemics.²⁰

As, breakthroughs in prevention hit hard against financial reality, here are some of the questions scientists, physicians, officials, AIDS workers, and people with HIV/AIDS are debating:

Is doubling the number of people receiving treatment possible?

Last year, the U.N. General Assembly set a target of reaching 15 million HIV-positive people with lifesaving anti-retroviral treatment by 2015 — nearly double the number receiving treatment today.²¹ The logistical and funding challenges to reach that goal, however, are formidable.

A major challenge is proximity to care. For many people, getting to a clinic or hospital is difficult. In some countries, it's next to impossible.

"By the time people arrive at our clinic, it is often too late," says Anja

de Weggheleire, medical coordinator in the Democratic Republic of Congo (DRC) for Médecins Sans Frontières (Doctors Without Borders), which runs a large HIV/AIDS clinic in the capital, Kinshasa. "We offer them the test, and then we have to hospitalize them immediately because they cannot even walk," says de Weggheleire. One-fifth of those immediately hospitalized die.

Only 12.3 percent of people in the DRC who need treatment receive it, one of the worst records in the world.²²

The African countries that are most successful at treating HIV/AIDS have

“Almost all Eastern European and Central Asian countries have abysmally failed to reach the recommended coverage of 200 syringes per year,” Martin Donoghoe, manager of HIV/AIDS programs for the World Health Organization (WHO), said.

Once infected with HIV, people in Eastern Europe and Central Asia have trouble getting treated. “In many countries of the region, access to life-saving antiretroviral therapy is among the lowest in the world,” reports the WHO.⁶

“The average time between a person testing HIV-positive and getting treatment is 800 days,” says Anna Shakarishvili, Ukraine coordinator for UNAIDS, citing a study done in Odessa, a Ukrainian port on the Black Sea. “That is totally unacceptable because Ukraine — unlike African countries and even many Asian or Latin American countries — has lots of doctors and nurses, a health-care system, roads, electricity, all of it.”

The problems are exacerbated by the lack of coordination between the government health-care system and the non-governmental organizations that distribute condoms, run needle exchanges and offer rapid HIV testing. “We need to bridge the gap,” says Shakarishvili.

Furthermore, she complains, once patients show up at a government health clinic, they must run a bureaucratic gauntlet. “If you test positive for HIV, you are referred to a [stand-alone] AIDS clinic,” she explains. “You then have to get blood tests, urine tests, an EKG and, if there is tuberculosis, be checked at a TB clinic — another stand-alone facility. And if there is drug use on top of that, you are referred to the drug treatment clinic.”

She recommends reducing the bureaucracy and offering health services needed by people with HIV in one place.

“Right now, it is a very complicated system,” she says.

— **Barbara Mantel**



AFP/Getty Images/Sergei Supinsky

A nurse cares for a terminally ill patient on July 6, 2010, at an HIV/AIDS clinic in Kiev, the capital of Ukraine. Russia and Ukraine have twice as many people living with HIV as Western and Central Europe combined, largely because of high rates of intravenous drug use.

¹ “The Global State of Harm Reduction 2012: Towards an Integrated Response,” Harm Reduction International, p. 42, www.ihra.net/global-state-of-harm-reduction-2012.

² “Global HIV/AIDS Response: Epidemic update and health sector progress towards Universal Access,” *Progress Report 2011*, World Health Organization, p. 33, http://whqlibdoc.who.int/publications/2011/9789241502986_eng.pdf.

³ Alisher Latypov, et al., “Opioid Substitution Therapy in Eurasia: How to increase the access and improve the quality,” *International Drug Policy Consortium Briefing Paper*, January 2012, pp. 5, 7, http://dl.dropbox.com/u/64663568/library/IDPC-briefing-paper_OST-in-Eurasia.pdf?utm_source=IDPC+Monthly+Alert&utm_campaign=a0f05fd57a-IDPC_January_2012_Alert1_17_2012&utm_medium=email.

⁴ *Ibid.*, p. 4.

⁵ Richard Knox, “Needle Exchanges Often Overlooked in AIDS Fight,” NPR, July 24, 2012, www.npr.org/blogs/health/2012/07/24/157283038/needle-exchange-often-overlooked-in-aids-fight.

⁶ “European Action Plan for HIV/AIDS 2012-2015,” World Health Organization, 2011, p. 2, www.euro.who.int/_data/assets/pdf_file/0011/153875/e95953.pdf.

decentralized care away from urban hospitals and regional health clinics and into the community. Swaziland, Zimbabwe, Botswana and Ethiopia, for example, allow nurses in local clinics to prescribe antiretroviral drugs, and a heartening 80 percent or more of eligible patients are getting treated.²³

But policy makers in the DRC, Nigeria, Tanzania and Mozambique, for example, have been reluctant to allow anyone but doctors to manage HIV/AIDS care. “It has been a stranglehold on larger scale-up and access,” said Sharonann Lynch, HIV policy adviser to the Médecins Sans Frontières Access Cam-

paign, based in Geneva, Switzerland. “There aren’t enough doctors.”²⁴

More countries will have to decentralize care if the U.N. goal is to be met, say experts. But expanding the number of clinics and health workers and buying more HIV tests and drugs would cost at least \$7 billion more each year worldwide.

But who is going to pay? Currently, the United States donates more for HIV/AIDS prevention and treatment than any other country.²⁵ (*See pie chart, p. 429.*) But, “The United States can’t be the ministries of health for all these countries,” Eric Goosby, the U.S.

Global AIDS Coordinator, told *Bloomberg Businessweek*. “Our best chance at not having the United States be the predominant resource motor for HIV treatment . . . is to bring others to the table to put their resources to it.”²⁶

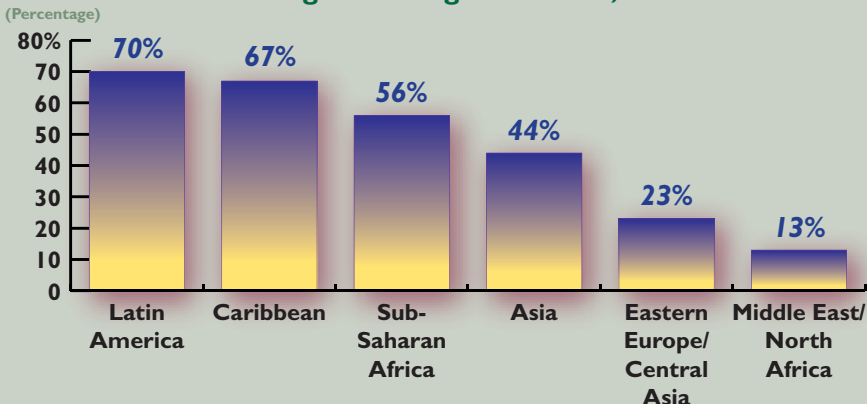
But in the wake of the worldwide economic crisis, many developed countries — including the United States — have cut back donations, so progress in fighting HIV/AIDS has been slipping.

Some poor countries, such as Cameroon and Zimbabwe, have had drug shortages, for instance. Other countries — such as the DRC, Central African Republic and Zimbabwe — have begun

Access to Treatment Varies by Region

More than 14 million people in nonaffluent countries need HIV treatment with antiretrovirals, but fewer than half are receiving it in some regions of the world. The lowest treatment levels are in the Middle East, Eastern Europe and Central Asia.

People in Low- and Middle-Income Countries Receiving HIV Drug Treatment, 2011



Source: "Together We Will End AIDS," UNAIDS, 2012

to charge patients for antiretroviral therapy, despite official policies calling for free treatment. In Asia, Myanmar is charging patients for diagnostic tests and drugs to treat opportunistic infections.²⁷

Bernhard Schwartländer, director of evidence, strategy and results at UNAIDS, is convinced the developing world can raise the needed funds. "The world is getting richer. We have to make it fairer," he told the AIDS conference in July.

A tax on shipping and aviation fuel could raise \$64 billion, he said, and a small tax on financial transactions could raise \$150 billion.²⁸ But while AIDS advocates, UNAIDS and the European Commission are pressing for such a levy, both the United Kingdom and the United States are wary. (See "At Issue," p. 441.)

"The only way this type of tax on financial trades would be effective is if it was implemented on a global scale," said Steve Rosenthal, a visiting fellow at the Tax Policy Center in Washington, a joint venture of the Urban Institute and the Brookings Institution that analyzes tax policies. "Otherwise, any country

that does it on its own would just lose its financial transaction center."²⁹

Even if countries adopted such a tax, as France did on a very limited basis in August,* other causes — such as other diseases, anti-poverty programs and environmental causes — would compete for the money.

AIDS activists from countries hit hard by the epidemic also are pressing their own governments to make good on promised spending. "Our leaders in Africa need to show the way by putting 15 percent of their government budgets into health," says Fogué Foguito, executive director of Positive Generation, a group demanding expanded access to health care for HIV/AIDS and tuberculosis, based in Yaoundé, Cameroon.

In 2001, African heads of state met in Abuja, Nigeria, and signed the Abuja Declaration, promising to increase health spending to 15 percent

* France applies a 0.2% tax on the trading of shares only in public companies valued at more than 1 billion euros.

of their total budgets.³⁰ So far, only Rwanda, Botswana, Togo and Zambia have met that goal.³¹

In contrast, in 2010 most Western European countries spent 15-20 percent of their budgets on health care, and the United States spent 22 percent.³²

"We are a country rich in resources. We could tax cigarettes. We could tax alcohol. We could afford that," says Foguito about Cameroon.

Such "sin" taxes are low in Africa and Asia, according to Andrew Hill, a researcher at England's Liverpool University. He estimates that a tax as low as 1.5 cents on a bottle of beer and 10 cents on a pack of cigarettes could raise billions of dollars. "You only need to collect it from a small number of tobacco producers and breweries at the point that cigarettes and alcohol leave the factory," Hill told NPR.³³

Zimbabwe, meanwhile, which has imposed a 3 percent AIDS levy on individual and corporate income since 2000, now pays for 27 percent of its AIDS program — more than many other low-income countries.

"Depending on external funding has risk," explains Albert Manenji, finance director for Zimbabwe's National AIDS Council. "What if they pull out? We really need sustainable funding, and the only way to achieve that is to have your own resources."

Not only is international funding flat or declining, but the primary U.S. donor program, the President's Emergency Plan for AIDS Relief (PEPFAR), is moving away from providing drug treatment to providing technical support to governments, such as information technology and training, in an effort to encourage countries to take more responsibility for their HIV/AIDS programs. That transition can be rough.

The South African health department is expected to take over providing treatment by Oct. 1, "but the health system lacks capacity and is somewhat dysfunctional," says Ian Sanne, an AIDS clinician and researcher

at the University of the Witwatersrand in Johannesburg. And, the shift is happening too fast, he says. “It will lead to a treatment gap.”

Should HIV-negative individuals receive drug therapy to prevent infection with the virus?

There is no vaccine for AIDS and no cure. However, for the first time, adults who are free of HIV but at risk of becoming infected can now take Truvada — a once-daily pill containing two antiretroviral medicines — to significantly reduce that risk.

Truvada was approved in 2004 to be used in combination with other antiretrovirals to treat people who are HIV-positive and whose immune systems are weakening. On July 16, the U.S. Food and Drug Administration (FDA) approved its use as a preventive as well. The strategy is called pre-exposure prophylaxis, or PrEP.

“Today’s approval marks an important milestone in our fight against HIV,” said FDA Commissioner Margaret Hamburg, in announcing the new policy.³⁴

Many of those at risk of contracting HIV want access to the drug. “I want to find a husband,” said a 23-year-old prostitute in a Bangkok go-go bar the day of the FDA’s announcement. “If it works, I’ll take it.”³⁵

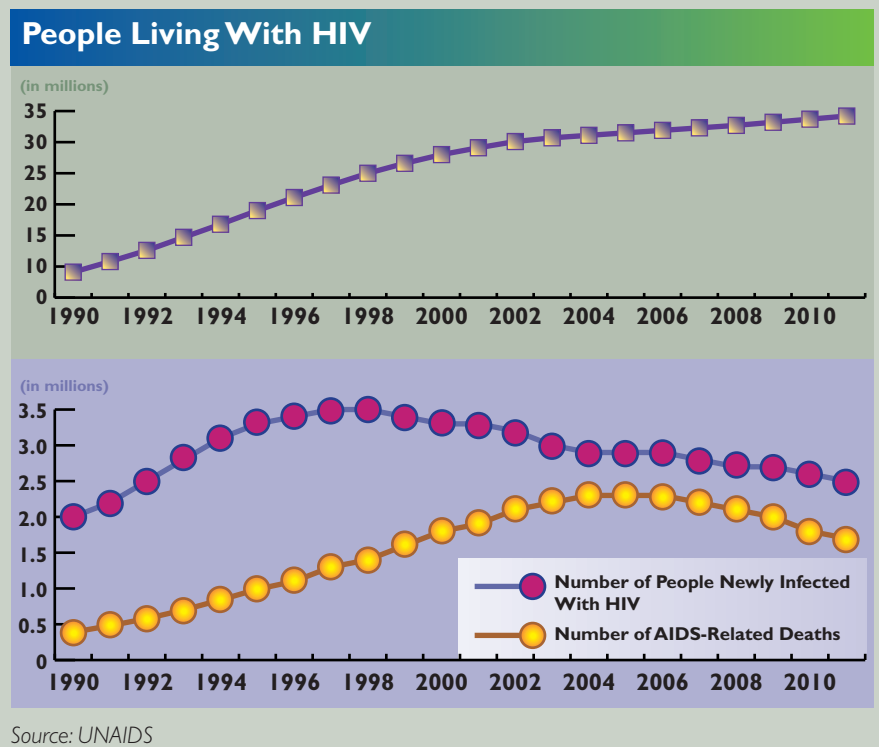
But it’s not that simple. Prescribing Truvada for people who are HIV negative raises a host of ethical, economic and medical issues, not the least of which are the side effects.

South Africa has more people living with HIV than anywhere else in the world, and Truvada is part of the country’s first-line treatment. William Mmbara, a doctor near Durban, told NPR he is seeing HIV-positive patients on Truvada develop osteoporosis and thinks that prescribing it for people who are not yet infected doesn’t make sense.

“Am I going to risk giving someone osteoporosis later in life to pro-

New Infections and Deaths Decline

Although more people are living with HIV than ever before, the galloping annual rates of increase in the prevalence of the disease seen in the 1990s have slowed (top). Health officials credit expanded treatment — which has reduced the annual AIDS death toll (bottom) — and more robust prevention programs, which have cut down on the number of new infections (bottom).



tect them from HIV today?” he asks. Truvada can also cause decreased kidney function.³⁶

Others worry that those who take the drug to prevent infection will stop using condoms. PrEP’s approval would be “a reckless act,” Michael Weinstein, president and founder of the Los Angeles-based AIDS Healthcare Foundation, which provides treatment in 22 countries, said shortly before the FDA’s decision.³⁷ However, PrEP studies have not shown an increase in risky, unprotected sex among those taking Truvada. But they were controlled, clinical trials, and participants received counseling and condoms. It’s difficult to know what behavior would occur in the real world.

Continued condom use is important because studies show that Truvada does not provide complete protection. A study of men who have sex with men in Peru, Ecuador, Brazil and three other countries found that Truvada lowered their infection risk by 44 percent. Another study in Kenya and Uganda showed that uninfected heterosexual men and women who took Truvada reduced their risk of HIV infection by 75 percent.³⁸

Protection from the virus varied because not all study participants took the daily pill consistently — and that raises troubling concerns. “It’s not a solution,” said physician Direceu Greco, director of Brazil’s AIDS program. “Even studies presented here show that half

of those enrolled don't stick to the regimen." 39 Without strict adherence, the virus could develop resistance to the drug, reducing Truvada's usefulness not only for prevention but for treatment.

Brazil is not the only study country not yet willing to support PrEP. "It is not appropriate for Uganda now, and I feel very strongly about this," says physician Jesse Kagimba, an HIV/AIDS adviser to President Yoweri Kaguta Museveni and a board member of the Uganda AIDS Commission. He doubts adherence would be high, especially in a country where polygamy is legal. "A woman might be in a polygamous relationship, and her opportunity for sex may be once a month," says Kagimba. "Who is going to take a daily pill when they are expecting to have sex once or twice a month?"

But Ugandan physician Paul Semugoma argues that, "Dismissing PrEP out of hand because of presumptions that it cannot work is . . . ridiculous." A founding board member of the advocacy group African Men for Sexual Health and Rights in Johannesburg, Semugoma says, "The most important thing is finding the people who are at the highest risk. We must find them and give PrEP to them."

Nearly 7 percent of adults age 15 to 49 in Uganda are living with HIV, but the rate is twice that for men who have sex with men and five times higher for sex workers. Semugoma would like to see Uganda set up a clinic in the capital to test these two groups for HIV and provide treatment if positive and PrEP if negative, along with condoms and counseling. And since these groups are a gateway for HIV transmission to the general population, everyone would benefit, he says.

"But first we must stop the ideological thinking in Uganda that you don't help sex workers, and you don't help men having sex with men because they are morally bad," says Semugoma.

Kagimba insists the government's reluctance to promote PrEP is not based on prejudice but on lack of evidence.

The PrEP study that took place in Uganda focused on heterosexual couples. "We don't have the data on men who have sex with men or commercial sex workers in Uganda," he says. "I personally like to work on evidence."

Besides, he says, condoms work, without the problems of side effects, potential drug resistance or high cost. "Who would pay for PrEP?" he asks. "Is it the Ministry of Health, when we cannot even afford to treat more than half of those who are positive and eligible?"

Beatriz Grinsztejn, an AIDS specialist at Brazil's Oswaldo Cruz Foundation Research Institute in Rio de Janeiro and a member of the Brazilian team studying PrEP, says the short-term expense would be worth it.

"Once a person is infected, he or she needs to get treatment for a lifetime," says Grinsztejn. "PrEP, on the other hand, will be used only in certain periods of a person's life, when they are most at risk." So for instance, an HIV-negative sex worker who marries and becomes monogamous would no longer need PrEP; neither would a monogamous gay man who uses condoms.

Are pharmaceutical companies keeping drug prices too high?

Since 2000, the cost for a year's worth of HIV treatment in developing countries has plummeted from more than \$10,000 a year per person to less than \$150. 40 The striking decline — instrumental in expanding treatment to millions of people — is due to generic production, mostly in India, where the drugs were never patented.

But some of the more prosperous, middle-income developing countries don't have access to all the generics. "China is left out. Brazil is left out. Morocco is left out," says Leena Menghaney, head of the Médecins Sans Frontières Access Campaign in India. Those countries were not included in the voluntary licensing agreements that Gilead Sciences, a pharmaceutical company in Foster City, Calif., signed in 2006 with

generic manufacturers in India to produce its popular tenofovir-based drugs, including Truvada. The agreement allows the companies to sell the generics to 95, mostly poor, countries. 41

"Middle-income countries, many with significant HIV populations, are being left out of these kinds of agreements" says Menghaney, who laments that even though some countries' economies may be doing well, "it doesn't necessarily mean that there is money available for expensive, patented drugs." Tenofovir-based treatment regimens in these countries can cost five to 10 times what generics cost. 42

A company spokesperson says Gilead's branded products are "priced using a tiered system that reflects each country's ability to pay. The tiers, which are evaluated on an ongoing basis, are based primarily on a country's gross national income per capita and its HIV prevalence."

Tenofovir-based regimens are first-line treatments, used when a patient first needs therapy. But sometimes patients must switch to newer, costlier drugs, and their expense is creating problems, say experts.

"Sustainability of access to treatment remains a real challenge as more patients . . . fail first-line antiretroviral therapy," either because they suffer adverse effects or develop drug resistance, said Paul De Lay, deputy executive director for programs at UNAIDS. These patients must turn to more expensive second- and third-line drugs that are often patent protected, said De Lay. 43 PEPFAR projects that up to 10 percent of patients taking antiretrovirals will develop resistance each year. 44

One of the newest regimens — a combination of the three drugs raltegravir, etravirine and darunavir boosted with ritonavir — is recommended for those who have failed other drug regimens. It costs \$2,486 per person per year in sub-Saharan Africa. Lower-middle-income countries pay much more. In El Salvador, etravirine alone

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Chronology

1980s *AIDS emerges and quickly sweeps globe.*

1981

U.S. Centers for Disease Control and Prevention (CDC) reports rare pneumonia and skin cancer in young gay men.

1982

CDC calls the condition Acquired Immune Deficiency Syndrome (AIDS) after identifying male homosexuality, intravenous drug use, Haitian origin and hemophilia as risk factors.

1983

CDC lists female sexual partners of men with AIDS as fifth risk group. . . . Scientists identify heterosexual AIDS patients in Zaire.

1984

U.S. and French researchers discover AIDS virus, later named human immunodeficiency virus (HIV).

1985

U.S. Food and Drug Administration (FDA) licenses first test for HIV antibodies; blood banks screen blood supply for HIV-infected blood. . . . China reports its first HIV case.

1986

HIV cases reported in Russia and India.

1987

FDA approves AZT, the first anti-retroviral drug to fight HIV; at a cost of \$12,000 a year, few can afford it.

1988

More than 5 million people are living with HIV or AIDS worldwide; in sub-Saharan Africa, afflicted women exceed men.

1990s *HIV infections climb worldwide; drug treatment advances.*

1991

Thailand launches Asia's most extensive HIV prevention program.

1992

FDA approves rapid HIV test.

1994

AZT reduces risk of mother-to-child HIV transmission; infant HIV infections fall in developed countries.

1995

FDA approves first protease inhibitor; drug "cocktails" prevent HIV from developing into full-blown AIDS. . . . Joint United Nations Programme on AIDS (UNAIDS) is established.

1997

AIDS-related deaths in U.S. drop more than 40 percent from previous year; Brazil becomes first developing country to provide such treatment free. . . . More than 25 million people worldwide are living with HIV or AIDS.

2000s *Scientific advances hold hope for ending epidemic; international funding expands, then stalls.*

2000

South African President Thabo Mbeki is criticized for view that HIV doesn't cause AIDS.

2001

World Trade Organization agreement allows developing countries to buy or manufacture cheaper generic drugs to meet public health crises, such as HIV/AIDS.

2002

Global Fund to Fight AIDS, Tuberculosis and Malaria begins operation. . . . Botswana begins Africa's first national AIDS testing and treatment program.

2003

President George W. Bush launches President's Emergency Plan for AIDS Relief (PEPFAR), a five-year, \$15 billion global initiative.

2004

FDA announces expedited review of generic HIV drugs manufactured abroad, giving PEPFAR access to cheaper drugs.

2008

Congress authorizes \$48 billion for PEPFAR.

2009

President Barack Obama launches six-year \$63 billion anti-AIDS program in low- and middle-income countries; PEPFAR is key component. . . . Experimental vaccine tested in Thailand offers modest protection against HIV.

2010

Clinical trial shows microbicide gel greatly reduces HIV infection risk in sexually active women in South Africa. . . . Study shows combination drug Truvada prevents HIV infection among some high-risk groups.

2011

Multinational study of heterosexual couples shows early treatment of infected partner greatly reduces transmission to HIV-negative partner.

2012

FDA approves use of Truvada for prevention in HIV-negative people and over-the-counter rapid HIV test. . . . Nearly 35 million people are living with HIV or AIDS.

Scientists Predict a Vaccine Is Within Reach

After 30 years of frustration, tantalizing discoveries raise hopes.

At a packed news conference in 1984, American scientists and government officials announced the discovery of the AIDS virus, and Secretary of Health and Human Services Margaret Heckler made a bold statement: “We hope to have . . . a vaccine ready for testing in about two years.”¹

In the nearly three decades since, scientists have yet to design an effective vaccine. HIV has proved a formidable foe, inserting its DNA into human cells and mutating ferociously. But a series of tantalizing discoveries in the past few years has led scientists to predict that a licensed vaccine is within reach.

“Seven to eight years ago, the field was frustrated that we didn’t know what to do and we certainly didn’t know how to do it,” said Barton Haynes, a Duke University professor of medicine and immunology and director of the online consortium of scientists known as the Center for HIV/AIDS Vaccine Immunology. “What is different now is, we have clues.”²

For instance, a clinical trial in Thailand involving more than 16,000 adults using a combination of two vaccines found that the vaccines lowered the rate of HIV infection by roughly one-third. Although the results were not effective enough to bring the vaccine to market, “It is the first time that we have ever seen a positive signal of efficacy in a human trial of any HIV vaccine,” said Anthony Fauci, director of the U.S. National Institute of Allergy and Infectious Diseases (NIAID), the trial’s largest funder. He called the finding “a welcome and exciting result in a field that has been characterized by many disappointments for more than two decades.”³

Researchers studying the immune response of the trial participants have discovered which part of the virus their immune systems targeted in order to defeat it.

“We’re really working as fast as we can,” said Col. Nelson Michael, director of the U.S. Military HIV Research Program at

the Walter Reed Army Institute of Research in Silver Spring, Md., which led the Thai trial. Michael told Reuters he expects large-scale effectiveness studies to start in 2016.⁴

The Holy Grail would be an HIV vaccine that would both stimulate a person’s immune system to produce protective antibodies and train the body’s killer “T-cells” to destroy cells infected by HIV not blocked by the antibodies.

But HIV’s extreme ability to mutate allows it to constantly evade antibodies. “The virus is far more crafty than we ever thought,” said Haynes.⁵

Recently, researchers have isolated and analyzed dozens of relatively rare, potent antibodies that can neutralize a wide spectrum of HIV variations. The antibodies were discovered in a handful of individuals with chronic HIV infection who developed antibodies over time.

Although the super-antibodies did not prevent HIV from progressing in these patients, scientists hope that if a vaccine can induce the body to manufacture these antibodies in advance, they can prevent infection when a person is exposed to HIV.

— *Barbara Mantel*

¹ Steve Sternberg, “U.S. Officials: Virus May Be AIDS Source,” *The Miami Herald*, April 24, 1984.

² “Q and A with Barton Haynes,” *Vax: The Bulletin on AIDS Vaccine Research*, June 2012, www.vaxreport.org/Back-Issues/Pages/Q-and-A-with-Barton-Haynes.aspx.

³ Kristen Jill Kresge, “Special Report: Thai Trial Results,” *IAVIRreport*, www.iavireport.org/Special-Features/Pages/SpecialReportThaiTrialResults.aspx.

⁴ Julie Steenhuisen, “Scientists see AIDS vaccine within reach after decades,” Reuters, July 15, 2012, www.reuters.com/article/2012/07/15/us-aids-vaccines-idUSBRE86E09C20120715.

⁵ Steenhuisen, *op. cit.*

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costs close to \$7,000; in Georgia, darunavir costs more than \$8,000.⁴⁵

A major barrier to the development of generic formulations of newer anti-retrovirals is the multilateral Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS). Before 2005, India did not approve patents for medicines, but that changed after India signed the TRIPS agreement. Now India is issuing patents on new molecules. Raltegravir, for example, is patented in India, so no generics are made.

India’s patent law is fairly strict, how-

ever. The country does not usually give patents for new uses of older drugs, and it allows interested parties to oppose a patent before or after it is granted.

In addition, the TRIPS agreement allows for flexibility in the face of a public health crisis. So signatory countries, for example, can issue a compulsory license to a generic manufacturer without the patent holder’s permission. Malaysia, Ecuador, Brazil and Thailand have issued compulsory licenses for particular HIV drugs they thought were too expensive and inaccessible, but it’s not done often.

Compounding the problem, say AIDS activists, are free-trade agreements that have expanded intellectual-property rights beyond what is required by the TRIPS agreement.

“Free-trade agreements are potentially disastrous for public health,” says Weinstein of the AIDS Healthcare Foundation. “They result in less access, and, unfortunately, no [U.S.] administration, Democrat or Republican, has really upheld the right for access to cheap medications for public health.”

One study estimated that expanded intellectual-property provisions in the U.S.-

Colombia Trade Promotion Agreement — which went into effect in May — would increase spending on medicines in Colombia by close to \$1 billion by 2020 or, alternatively, lead to a 40 percent drop in medicine consumption.⁴⁶

AIDS activists are particularly concerned about the Trans-Pacific Partnership Agreement, a regional trade agreement being negotiated between the United States, Canada, Mexico, Peru, Chile, Australia, New Zealand, Malaysia, Vietnam, Singapore and Brunei.

“This U.S. trade policy is going to undermine U.S. AIDS policy by driving up medicine costs and keeping new HIV/AIDS drugs monopolized for longer periods of time in Vietnam,” said Peter Maybarduk, program director of Washington-based Public Citizen’s Global Access to Medicines project, which works with civil society groups to lower drug costs.⁴⁷

He and others cite certain intellectual-property provisions that U.S. trade negotiators are pushing, including making it difficult to challenge a patent’s validity before it is granted and making it easier for new uses of existing drugs to gain patent protection.

“Patents covering new methods of use or new forms would incentivize development of adaptations of drugs that are often highly valued in developing countries,” says Deputy U.S. Trade Representative Demetrios Marantis. “You grant a patent for things that are new, useful and non-obvious.”

But AIDS advocates worry that the provision would enable pharmaceutical companies to tweak an old drug whose patent is expiring and extend their monopoly. “We’ve gotten a lot of feedback, some of which is not positive, and we are reflecting upon that very carefully,” says Marantis. “And we are actively seeking continued feedback to make sure that we get this right.”

The trade negotiations are secret, however, even though some details have been leaked, and the advisory committees are composed mostly of drug industry representatives. ■

BACKGROUND

Emergence of AIDS

Scientists believe the AIDS virus came from a similar virus found in chimpanzees that was transferred to humans in West Africa sometime between the 1880s and the 1920s.⁴⁸ The most commonly accepted theory is that hunters became infected with the simian virus as a result of killing chimpanzees for meat and coming in contact with their infected blood.

Once in humans, the virus mutated into HIV and over decades “slowly spread across Africa and later into other parts of the world,” according to the Centers for Disease Control and Prevention (CDC) in Atlanta, Ga.⁴⁹

But health-care providers didn’t become aware of the consequences until the spring of 1981. A drug technician at the CDC noticed a California doctor’s unusual number of requests for a drug to treat a rare form of pneumonia in several gay men. At about the same time, an aggressive form of Kaposi’s sarcoma, a rare skin cancer found mostly in the elderly, was observed in eight young, gay men in New York.

As more gay men were diagnosed with either or both diseases — and suffering from other infections and parasites — the mysterious syndrome gained the name gay-related immune deficiency (GRID). But it soon began to appear in other populations, first among injecting drug users in December and then in Haitians and hemophiliacs in 1982.⁵⁰ As a result, journalists and scientists started referring to the condition as Acquired Immune Deficiency Syndrome (AIDS).

By November 1982, the CDC had received reports of nearly 600 cases of AIDS. The epidemic was doubling every six months, and more than 60 percent of patients were dying a year or more after diagnosis.⁵¹

“It’s the worst way I’ve ever seen anyone go,” said a New York physician of his earliest patients. “This is total body rot. It’s merciless.” Bewildered scientists struggled to determine what caused the illness that severely suppressed the immune system and allowed a host of opportunistic pathogens to flourish.⁵²

Meanwhile, fear of contracting AIDS, along with concerns about stigma, was growing. *The New York Times* reported that some landlords in San Francisco had evicted tenants with AIDS, and the police department issued masks and gloves to patrol officers to use when dealing with someone suspected of having the condition. “The officers were concerned that they could bring the bug home and their whole family could get AIDS,” said Deputy Police Chief James Shannon.⁵³

In the United Kingdom, fear of contracting AIDS caused firemen to ban the “kiss of life,” or mouth-to-mouth or mouth-to-nose resuscitation, according to a history of the epidemic by AVERT, an international HIV and AIDS charity in Horsham, England.⁵⁴

In 1983, the World Health Organization (WHO) in Geneva began to monitor AIDS around the world and reported the presence of AIDS in the United States, Canada, 15 European countries, Haiti, Zaire (now the Democratic Republic of Congo), seven Latin American countries and Australia. Japan had two suspected cases.⁵⁵

In 1984, American and French researchers announced the discovery of the virus that causes AIDS, later named human immunodeficiency virus (HIV). The virus can be transmitted when certain bodily fluids from an infected person — primarily blood, semen, vaginal secretions and breast milk — come in contact with a mucous membrane or damaged tissue or are directly injected into the blood-stream.⁵⁶ Transmission generally occurs through sexual exposure, contaminated blood transfusions, contaminated hypodermic needles or mother-to-child exchange during pregnancy, delivery and breast-feeding.

The next year, the FDA licensed a blood test for commercial use that detected antibodies to the virus, and blood banks began to use it to screen donors and reject HIV-contaminated blood. Individuals also began to seek out testing.

Most U.S. cities with a high incidence of AIDS “established centers where individuals can walk in and, after counseling, take the test, often with complete anonymity. In most other states, doctors can send blood specimens to private laboratories for analysis,” according to a contemporary account in *The New York Times*.

Having the test widely available raised concerns about privacy and discrimination. Richard Dunne, director of the Gay Men’s Health Crisis in New York City, said New York must prevent insurance companies, employers, schools and others from gaining access to test results.⁵⁷

Heterosexual Transmission

More than half of the first 96 recorded AIDS patients in Europe were Africans, mostly from Zaire. “In contrast to infected Americans, however, they did not take drugs, and they had no obvious risk factor in common except their geographic origin,” wrote historian John Iliffe in his book about the African AIDS epidemic. In 1983, American and Belgian physicians left for Kinshasa, the capital of Zaire, to investigate.⁵⁸

“The moment I walked into the hospital in Kinshasa I realized something terrible was happening,” recalled physician Peter Piot, later the head of UNAIDS. The team of doctors saw patients suffering from multiple manifestations of AIDS, including mouth sores, diarrhea, meningitis, skin eruptions and parasites in the brain. They identified 39 AIDS cases in the city’s hospitals, almost evenly split between men and women.

The team warned local doctors that the syndrome appeared to be “sexually transmitted, incurable and fatal,”

wrote Iliffe. When the news appeared in local papers, however, President Mobutu Sese Seko banned the subject for the next four years. Iliffe said reactions abroad were “equally hostile” to news that AIDS was widespread in a heterosexual population.⁵⁹

By 1986, researchers estimated that the prevalence of HIV in major cities in Uganda, Rwanda, Zambia, the DRC and Tanzania was at least three times that of New York. Three years later, the virus was documented in the West African nations of Nigeria, Ivory Coast (Côte d’Ivoire) and Senegal, according to author Jonathan Engel.⁶⁰ Soon it moved east and south into Zimbabwe, Botswana and South Africa.

“The African epidemic appeared to be spreading most aggressively into those portions of the population least affected in the United States: educated, employed, married, middle-class heterosexuals,” wrote Engel. Eventually, it was determined that the disease was being spread by miners, soldiers, truckers and builders — often away from home for long periods of time — who sought the company of prostitutes, many of whom were HIV-positive.⁶¹

In addition, condom use was low, and due to cultural norms few wives could insist on condom use when their traveling husbands returned. Moreover, several regions had no tradition of male circumcision, which helps prevent HIV transmission.

“Most African governments were slow to grasp the scale of the crisis,” wrote Iliffe, in part because many were “weak regimes faced with more immediate problems,” and the crisis was so novel.

There were a few notable exceptions. Rwanda began screening blood in 1985, and that same year Ethiopia, Tanzania and Kenya each established AIDS committees to do the same and educate the population. Uganda sought help from the WHO.⁶² But with no vaccine or effective drugs to buy and distribute, the international response remained modest.

In Asia, the first dozen AIDS deaths were documented by 1987, fueled initially by heroin users. “For Thailand, and later Vietnam, Cambodia and Burma, IV drug use was merely the point of departure for an epidemic transmitted largely through the nation’s commercial sex industry,” wrote Engel.

HIV spread to urban sex workers in Japan as well, while in China the epidemic exploded in villages and towns “where it gestated in contaminated rural medical clinics, spread through unsterilized needles, plasma donations and shared medicine bottles.”⁶³

By 1991, the epidemic was rampant in the Thai sex industry. Unlike Africa, where HIV followed the trucking routes, in Thailand it followed sex workers. “Infected northern women, returning to their homes after multiyear sojourns in Bangkok and Chiang Mai, fostered a rural epidemic that was seven to eight times worse than that of the rest of the nation,” according to Engel.⁶⁴

That year Thailand began a large and ultimately effective AIDS awareness campaign that included distributing condoms to brothels.

Treatment and Funding

In 1987, the U.S. FDA approved zidovudine (AZT), the first drug to combat HIV. However, it proved to be highly toxic, causing anemia and high fevers. Even worse, HIV adapted to the drug relatively quickly, often becoming resistant after only six months of treatment. On average, it seemed to prolong life no longer than a year.

By 1991, two more antiretroviral drugs similar to AZT were approved. But the real breakthrough in drug treatment came four years later, when the FDA approved the drug saquinavir, the first of a potent new class of drugs called protease inhibitors. A year later, the agency approved nevirapine, one of a new type of drugs called non-nucleoside reverse transcriptase inhibitors.

Doctors began putting HIV-infected people on a “cocktail” of three or more of these drugs, and patients’ health improved dramatically. Infection-fighting blood cells recovered rapidly, and the amount of measurable virus plummeted, in some cases to undetectable levels.

“For some people, particularly those who had been ill in hospital and were then able to go home, the improvement was so dramatic that it was referred to as the ‘Lazarus Syndrome,’” according to AVERT, after the Biblical character Jesus raised from the dead.⁶⁵

Combination therapy was a sharp turning point in the epidemic, transforming AIDS from a death sentence into a chronic illness. But the regimen was not easy to follow. Before the pharmaceutical industry developed single-dose pills, patients had to keep track of dozens of pills a day, some of which needed to be refrigerated. The drugs, which were costly, also caused side effects, such as nausea, diarrhea and dizziness.

For all those reasons, many questioned whether it was worth trying to extend drug treatment to the poorest parts of the world. But in 2000 research presented at the International AIDS Conference in Durban, South Africa, demonstrated that “such treatments can be effective even in the most difficult settings” and led to calls for universal access.⁶⁶

But with nearly 30 million people estimated to be living with HIV or AIDS worldwide in 2000, most of them in sub-Saharan Africa, the international community would have to step forward and provide much of the funding. At the time, only about 50,000 people in the developing world had access to the latest drugs.⁶⁷

Championed by U.N. Secretary-General Kofi Annan, The Global Fund to Fight AIDS, Tuberculosis and Malaria was created in 2002 as a unique public-private agency to distribute international donations to low- and middle-income countries. The fund has become the main financier of programs to fight the

three diseases, with over \$30 billion pledged to date for more than 1,000 programs in 151 countries. Since its inception, The Global Fund has helped to provide treatment for 3.6 million AIDS patients.⁶⁸

The United States is by far the largest contributor to the fund, having pledged nearly \$10 billion through 2013 and paid \$7 billion so far. Other large public donors include the U.K., Germany, Japan and France. The Bill & Melinda Gates Foundation is the largest private contributor, having pledged — and contributed — \$1.4 billion so far.⁶⁹

But in the past year, many countries have not released money they have pledged, and the Global Fund has had to cut back on its program funding.

The United States does not just contribute to the Global Fund. It also directly funds AIDS prevention and treatment in hard-hit countries. In 2003, President George W. Bush launched the President’s Emergency Plan for AIDS Relief (PEPFAR).

“Ladies and gentlemen, seldom has history offered a greater opportunity to do so much for so many,” Bush said in his State of the Union address as he announced the plan, asking Congress to commit \$15 billion over five years to “turn the tide against AIDS in the most afflicted nations of Africa and the Caribbean.”⁷⁰

Three people were influential in convincing Bush to create PEPFAR: the Rev. Franklin Graham, leader of the Christian relief organization Samaritan’s Purse; the late Sen. Jesse Helms R-N.C., and rock star and AIDS activist Bono. They strongly urged the administration to increase its commitment to fight HIV/AIDS.

“The moral and religious argument for a global response resonated strongly with President Bush,” wrote Michael Merson, a professor of global health at Duke University in Durham, N.C., and colleagues in a recent *Health Affairs* article.⁷¹

PEPFAR, which Congress renewed in 2008 with an authorization of \$48 bil-

lion, is the largest investment by any country to address a single disease. The program is supporting nearly 4.5 million people on treatment, putting it on track to reach President Barack Obama’s goal of treating 6 million people by the end of 2013. It is also funding more than 400,000 male circumcision procedures in the first half of 2012; providing antiretroviral drugs to more than 370,000 HIV-positive pregnant women in the first half of the year and supported HIV testing and counseling for more than 40 million people last year.⁷²

Public health experts consider PEPFAR a success. “U.S. leadership has truly transformed the global response to AIDS and the course of the epidemic,” said UNAIDS’ Piot shortly before the 2008 reauthorization. “It really enabled us to make a qualitative and a quantum leap forward.”⁷³

PEPFAR has come in for its share of criticism, however, including charges that it did not coordinate its programs with recipient countries and it over-emphasized abstinence.⁷⁴ More critically, PEPFAR was criticized for using only FDA-approved antiretroviral drugs, which meant it paid more for drugs than other HIV/AIDS initiatives that used generic drugs approved by WHO. That was remedied in 2004, however, when the FDA announced it would expedite review of generic HIV drug regimens manufactured outside the United States, significantly lowering PEPFAR’s costs and allowing it to greatly expand its reach. ■

CURRENT SITUATION

Voluntary Circumcision

In a show of personal and political commitment to the fight against AIDS,

20 members of Zimbabwe's Parliament underwent circumcision one Friday last June. Another 20 committed to doing the same. Blessing Chebundo, chair of the parliamentary panel on health, was the first volunteer.

"I was a bit scared at first, but I didn't feel a thing," he said. "I can confidently urge all Zimbabwean men to go through with this."⁷⁵

Three randomized controlled trials in neighboring South Africa have conclusively shown that voluntary medical male circumcision (VMMC) reduces the risk of sexual transmission of HIV from women to men by approximately 60 percent. Five years ago, WHO and UNAIDS recommended male circumcision as an important HIV prevention strategy when packaged with HIV testing, free condoms and safe-sex counseling.⁷⁶

About two-thirds of African men have already been circumcised, primarily for cultural or religious reasons. "It is the non-circumcising communities in Southern Africa and parts of East Africa that have the highest HIV prevalence," said Emmanuel Njeuhmeli, a senior biomedical prevention adviser to the U.S. Agency for International Development.⁷⁷

Fourteen countries in Africa are trying to scale up circumcisions: Botswana, Ethiopia, Kenya, Lesotho, Malawi, Mozambique, Namibia, Rwanda, South Africa, Swaziland, Uganda, Tanzania, Zambia and Zimbabwe. The Obama administration, which is helping to fund these efforts through PEPFAR, would like to see 4.7 million procedures performed in the developing world by the end of 2013.⁷⁸

WHO suggested a goal of circumcising 80 percent of the men between the ages of 15 and 49 in the 14 countries by 2015, amounting to more than 20 million circumcisions. If that could be accomplished and sustained for another 10 years, it would prevent 3.4 million new HIV infections and save \$16.5 billion, the organization estimates.⁷⁹

But if community leaders do not support the program, progress will be

slow, says Ethiopian physician Tigistu Adamu Ashengo, lead technical adviser on VMMC for Baltimore-based Jhpiego, an international health organization affiliated with The Johns Hopkins University. Political support has been strong in Kenya, Zimbabwe and rural Tanzania, says Ashengo.

"We circumcised 100,000 men over a two-year period" in Tanzania's Iringa region, he says. "We reached that 80 percent goal."

But political support has been lackluster in Uganda and Swaziland, he says, even though Swaziland asked the United States for help. Last year, PEPFAR spent an additional \$15.5 million to circumcise 80 percent of HIV-negative adult men in the country, but a year later only 23 percent had volunteered for the procedure.⁸⁰

"We were a little ambitious going for 80 percent coverage in one year, as opposed to other countries, where we aimed for three to five years," says Ashengo.

He says reaching the 2015 goal for the 14 target countries will be "challenging."

Mother-to-Child Transmission

"My baby, she's fine! She's playing, and she's saying 'mummy, papa,'" a 32-year-old HIV-positive mother said while holding her laughing daughter during a routine check-up at a public hospital in Soweto township, South Africa.⁸¹

The 1-year-old is virus-free thanks to a state health program that provides antiretroviral drugs at no cost to HIV-positive women during pregnancy, labor and breast feeding, reducing their risk of passing the virus to their babies through the umbilical cord or by exposure to bodily fluids. Without the drugs, an infected pregnant woman has about a 30-40 percent chance of transmitting the virus to her child.⁸²

Last year, only 330,000 children were newly infected with HIV — about half as many as in 2003 — and the U.N. General Assembly adopted an ambitious plan to reduce that number even further, by 90 percent by 2015. Priority is being given to the 21 countries in sub-Saharan Africa and India where the vast majority of pregnant women living with HIV reside.⁸³

"The clinical interventions needed to reduce new HIV infections in children . . . are well documented, and most are inexpensive and cost-effective," Pierre Barker and Kedar Mate of the Institute for Healthcare Improvement, in Cambridge, Mass., wrote recently. But those efforts cannot succeed where "maternal and child health-care services are inaccessible" or where HIV drug therapy is delivered in clinics separate from maternal health clinics, conclude Barker and Mate.⁸⁴

Only eight of the 22 target countries are on track to reach the ambitious U.N. goal: Ethiopia, Ghana, Kenya, Namibia, South Africa, Swaziland, Zambia and Zimbabwe.⁸⁵

It is critical to provide testing and, when needed, therapy to pregnant women. Yet despite a decade of progress, "in 2010 only 42 percent of pregnant women in sub-Saharan Africa had an HIV test, and only 60 percent of eligible women received some form of antiretroviral therapy."⁸⁶

Five of the 22 target countries, however, have made great strides: Botswana, Lesotho, Namibia, South Africa and Swaziland are providing the recommended antiretrovirals to 80 percent of pregnant women living with HIV. But Asia, including India, is covering only 16 percent of pregnant women in need.⁸⁷

While Zimbabwe is on track to meet the U.N. goal, it won't happen without a "rapid scale-up" of the most effective drug regimens, says Agnes Mahomva, director of Zimbabwe's program for the Elizabeth Glaser Pediatric AIDS

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Should wealthy countries tax financial transactions to fund HIV/AIDS treatment?



OLGA GOLICHENKO
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INTERNATIONAL HIV/AIDS ALLIANCE
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Yes! If a small financial transaction tax (FTT) could help curb speculative finance as well as fix health-care systems and bring an end to AIDS, why would you not? French President François Hollande pledged during the recent International AIDS Conference in Washington that part of his newly introduced FTT, or Robin Hood tax, should fight global poverty and HIV/AIDS. The FTT is supported by trade unions, nurses, community and faith-based organizations, AIDS activists and high-profile personalities including Bill Gates, George Soros and Jeffrey Sachs, not to mention the 220 million supporters of the Robin Hood tax campaign in 25 countries.

In the United States, the current financial crisis and recession have left a massive hole in public finances, jobs and community services. Many other countries face a similar struggle. In total, more than half a million people have died from AIDS in the United States, and thousands are on waiting lists for treatment. Every day around the world more than 7,400 people are infected with HIV and 5,500 die from AIDS-related illnesses.

It doesn't have to be this way. In the United States, the FTT — which would amount to a tax of less than one-half of 1 percent on Wall Street transactions — could generate \$350 billion annually. Just \$22-24 billion of this could ensure that everyone in the United States and internationally has access to HIV prevention, treatment, care and support services. Ultimately, a Robin Hood tax could finance the end of AIDS.

At the moment, every American family is paying for the financial sector's mistakes; so too are some of the poorest communities in the developing world, thousands of miles from the financial powerhouses of Europe and the United States.

We believe that any country whose financial sector runs speculative financial transactions should introduce the FTT. Many countries like South Africa, India and Brazil have done so already and raised substantial amounts of revenue. The FTT discourages high-risk financial operations and makes the financial sector pay its fair share of taxes. This is only right; after all, a reckless casino culture in parts of the financial sector caused the existing crisis.

Allocating a significant part of FTT revenues to addressing the AIDS epidemic and broader global health and development issues is a just and equitable way to do business, while at the same time acknowledging the right of citizens everywhere to lead healthy lives.



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While the motives of those who wish to find new ways to fund prevention and treatment of HIV/AIDS are no doubt laudatory, a tax on financial transactions is probably one of the worst taxes one could design from the point of view of political economy. If we are to have good, effective and efficient government, then it is important that we know who bears the cost of government.

It is widely thought that a tax on financial transactions will be borne by "fat-cat" dealers and traders. In fact, it is virtually impossible to determine who will bear the burden. Will it be the dealers and traders? Will it be banks' shareholders? Will it be ordinary people and businesses, who will be forced to pay higher margins for foreign currency and higher interest rates on securitized mortgages? Will the burden fall on new companies trying to raise capital in the equity markets?

We have no real idea, but, in all likelihood, it will be the banks' customers who will bear most of the burden — in other words, people using banks for the ordinary business of saving, borrowing and investment.

The least popular tax in the United Kingdom by far is the Council Tax, paid directly through standing order or by check each month. It raises less than 5 percent of government revenue, but it is universally disliked because people have to pay it explicitly. A financial transactions tax is at the other end of the scale — it is a hidden, devious stealth tax.

But, ignoring these issues, will a transaction tax benefit the economy in other ways?

The European Commission, a strong supporter of such a tax, estimated that GDP would fall by 1.76 percent as a result of its imposition. This is because the network of financial transactions that underlies real economic activity is complex. As a result, a tiny tax on transactions can lead to a huge tax on the value added.

Not only that, a tax on transactions can increase volatility by reducing liquidity. In the end, a transaction tax could actually reduce tax revenue.

Overall, it is difficult to think of a more ill-designed policy than a stealth tax that imposes an unknown burden on banks' customers while reducing other tax revenues by destroying value and reducing national income.

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Foundation, a Washington-based non-profit working in 15 countries to prevent pediatric HIV infection. "We cannot afford to continue going slowly the way we have been," she says.

Donors have provided funding, and Mahomva's organization has helped train government health-care workers around the country in the latest drug regimen for HIV-infected pregnant women. But women drop out of the program at every stage.

"The drop-out starts right at the very beginning," says Mahomva. First of all, not all pregnant women go to the local clinic for prenatal care and HIV testing. And some of those who do go and test positive and receive drug therapy don't return for their refills, she says. Others drop out during breast feeding.

"You really have to be so vigilant at every step of the way, otherwise before you know it, we end up with so few," says Mahomva. That is why health-care workers at clinics and in villages throughout Zimbabwe are being trained to convince pregnant women, their families and village leaders of the importance of testing and adherence to therapy.

Women Still Neglected

Women represent about half of all people living with HIV worldwide and nearly 60 percent in sub-Saharan Africa. Although developing countries are scaling up programs designed to prevent mother-to-child transmission, many fail to check the mother's immune system to see if she needs lifelong treatment for her own well-being. As a result, many HIV-positive pregnant women receive drug therapy only during pregnancy.

"Orphaning will continue to increase if we don't actually provide treatment for women," Chewe Luo, a Zambian physician and HIV adviser to UNICEF, told the AIDS Conference in July. ⁸⁸

A new World Health Organization option suggests starting all pregnant women living with HIV on lifelong combination drug treatment, no matter how healthy they seem. Malawi has adopted this strategy. ⁸⁹

If women are to avoid HIV infection, they must get treatment, and societal norms must change. Studies show that sexual violence and early introduction to sex and marriage increase women's risk of HIV infection. So improving women's social and economic status can cut that risk, experts say, "by reducing their dependence on male partners and boosting their decision-making power." ⁹⁰

In a study conducted in Malawi, girls who were paid to attend school were more likely to delay sex, have fewer sexual partners and were 60 percent less likely to acquire HIV compared to peers who received no cash. The payments allowed the girls to stay in school and depend less on older male partners. ⁹¹

Giving women more control over their bodies when their partners won't use condoms is also essential to lowering their risk of HIV infection. Researchers are developing a vaginal ring that is inserted once a month and slowly releases an HIV-fighting microbicide. It is being tested in Malawi, South Africa, Uganda, Zambia and Zimbabwe.

The work marks an attempt at "the next generation of women-focused prevention tools," said Carl Dieffenback, head of AIDS research at the National Institutes of Health in Bethesda, Md., which is funding the study. ⁹² ■

OUTLOOK

Hunt for a Cure

American Timothy Brown is the only person known to have been

cured of AIDS. He received a bone marrow transplant in 2007 for leukemia from a donor with a genetic mutation that prevents HIV from entering immune cells.

Five years later, Brown is healthy and has stopped taking any AIDS medicines; he is also free of readily detectable virus. His experience, coupled with the existence of a rare group of HIV-positive individuals whose immune systems control the infection without therapy and without symptoms, has breathed life into the hunt for a cure.

"The time is right to try and develop an HIV cure. We might regret never having tried," said Françoise Barré-Sinoussi, director of the Regulation of Retroviral Infections Division at the Institut Pasteur in Paris.

The virologist was part of a team of prominent scientists announcing the launch of a comprehensive strategy to pursue cure research at a meeting two days before the start of July's International AIDS Conference. ⁹³ Up until recently, only a few scientists have pursued such research, "working without a clear source of funding and despite a widespread sense that a cure is not possible," said Barré-Sinoussi. ⁹⁴

Combination drug therapy, even if taken for life, is not a cure. HIV persists in the body, hidden in hard-to-find cells, ready to roar back if treatment is stopped. Moreover, HIV-positive patients on therapy still suffer health consequences, including inflammation and chronic activation of the immune system that increases their risk of heart disease, cancer and accelerated aging. ⁹⁵

But bone marrow transplants like the one Brown received are too costly and risky for widespread use, so scientists are pursuing other strategies. "We are at the fundamental, basic discovery level," said Anthony Fauci, director of the National Institute of Allergy and Infectious Diseases in Bethesda, Md. "The challenges are formidable; I mean, really formidable." ⁹⁶

One approach, called “shock and kill,” would use drugs to flush out the latent virus and then deploy other drugs to boost the immune system so it can clear the virus from the body. Researchers have taken a tentative first step. Scientists at the University of North Carolina at Chapel Hill announced in March that they had used anti-cancer drugs to expose hidden HIV in six male patients. It is a “significant step towards eradication of HIV infection,” said David Margolis, the lead researcher.⁹⁷

But some scientists remain unconvinced. “These cells have been infected with the virus, which is now integrated into their genomes and is hiding,” says Gilad Doitsh, head of the HIV Pathogenesis Group at the Gladstone Institute of Virology and Immunology at the University of California, San Francisco. “It is almost impossible to eliminate them from the body.”

Doitsh would rather see the research emphasize alleviating HIV symptoms and reducing the number of new infections “so we can eventually . . . eradicate it, not from a single person, but from the population.”

But cure researchers continue to pursue multiple strategies, including trying to replicate Brown’s experience with less cost and risk. Researchers are seeking ways to genetically modify patients’ cells so HIV is unable to bind to them.⁹⁸

Finding a cure will take “innovation, multidisciplinary collaborations and funding,” said Barré-Sinoussi.⁹⁹ ■

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Global Network of People Living with HIV (GNP+), van Diemenstraat 194, 1013 CP, Amsterdam, Netherlands; +31 20 423-4114; www.gnpplus.net. Works to improve the quality of life for people living with HIV.

International AIDS Society, Avenue de France 23, CH-1202 Geneva, Switzerland; +41 22 7 100 800; www.iasociety.org. A leading independent association of HIV professionals that convenes international HIV/AIDS conferences.

International Community of Women Living with HIV/AIDS, Bartolomé Mitre 811, Piso 2 (C1036AAO), Buenos Aires, Argentina; +54 11 4328-2879; www.icwglobal.org. Worldwide network of HIV positive women and girls advocating for their rights and a voice in policy decisions.

International Council of AIDS Service Organizations, 65 Wellesley St. East, Suite 403, Toronto, Ontario, M4Y 1G7 Canada; +1 416 921-0018; www.icaso.org. Mobilizes and supports diverse community organizations to build an effective global response to HIV and AIDS.

Jhpiego, 1615 Thames St., Baltimore, MD 21231; 410-537-1800; www.jhpiego.org. An international affiliate of The Johns Hopkins University; works in more than 150 countries to improve the health of women and their families.

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Researchers break down the sources of international AIDS funding, which has remained flat for four years.

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"Speed Up Scale-Up: Strategies, tool and policies to get the best HIV treatment to more people, sooner," Doctors Without Borders, UNAIDS, July 2012, http://reliefweb.int/sites/reliefweb.int/files/resources/MSF_Speed_up_Scale-up_report%20webres.pdf.

An international health-care provider discusses the steps needed to expand HIV treatment.

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Prices for first-line HIV-fighting drugs have come down, but many second-line drugs remain expensive.

The Next Step:

Additional Articles from Current Periodicals

Drug Prices

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HIV patients in London have been asked to help cut the city's annual bill for their drugs by switching to cheaper alternatives.

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Soaring food prices in Kenya have left many HIV patients choosing between eating and taking medications.

Leuty, Ron, "Targeting Gilead, AIDS Healthcare Foundation Seeks S.F. Referendum on HIV Drug Prices," *San Francisco Business Times*, Aug. 31, 2012, www.bizjournals.com/sanfrancisco/blog/biotech/2012/08/aids-hiv-stribild-truvada-pricing-ballot.html.

The AIDS Healthcare Foundation wants city officials to negotiate cheaper prices for prescription HIV drugs.

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Donnelly, John, "Why the West Should Step Up AIDS Fight in Africa," *The Washington Post*, April 8, 2012, p. B6.

Advocates say the West should increase AIDS funding in Africa because of its colonial history on the continent.

Mbabela, Zandile, "Crisis in Funding to Fight AIDS," *The Herald (South Africa)*, Nov. 30, 2011.

AIDS advocates say governments should reverse the recent downward slide in international donations to fight against the disease.

Ramat, Isah, "HIV/AIDS Financing — Africa at Make or Break It Point," *Leadership (Nigeria)*, Dec. 12, 2011, all.africa.com/stories/201112130218.html.

A funding crisis threatens efforts to combat HIV in sub-Saharan Africa.

Treatment

Beasley, Deena, "International Health Panel Says Treat All HIV Infections," Reuters, July 22, 2012, www.reuters.com/article/2012/07/22/us-aids-treatment-idUSBRE86L0A620120722.

An international health panel has recommended that all HIV patients be treated with antiretroviral drugs, even before the virus turns into full-blown AIDS.

Chipunza, Paidamoyo, "HIV/AIDS Treatment Gap Widens," *The Herald (Zimbabwe)*, March 7, 2012, www.herald.co.zw/index.php?option=com_content&view=article&id=357

29:hiv-aids-treatment-gap-widens&catid=49:health&Itemid=140.

Due to a lack of funding, the gap is widening between the number of Zimbabweans diagnosed with HIV/AIDS and the number receiving treatment.

Obinna, Chioma, "Appropriate Treatment Is Best Prevention Against HIV Transmission," *Vanguard (Nigeria)*, Dec. 6, 2011, www.vanguardngr.com/2011/12/appropriate-treatment-is-best-prevention-against-hiv-transmission-activist/.

Treatment reduces the viral load of HIV patients and makes transmission more difficult, says an AIDS expert.

Vaccine

"How Close Are We to Finding an HIV Vaccine?" *New Vision (Uganda)*, May 21, 2012, www.newvision.co.ug/news/631250-How-close-are-we-to-finding-an-HIV-vaccine-.html.

Although no effective HIV vaccine exists today, evidence suggests one may emerge in the future.

Botelho, Alyssa A., "Hope Grows for Vaccine Against AIDS Virus," *The Washington Post*, July 24, 2012, p. E1.

Leaders in AIDS vaccine research say they may be close to a major discovery that could lead to the development of a vaccine.

Narayan, Pushpa, "Scientists Abandon AIDS Vaccine Trials," *Times of India*, Sept. 17, 2011, articles.timesofindia.indiatimes.com/2011-09-16/chennai/30164775_1_nation-al-aids-research-institute-vaccine-candidate-mva-vaccine.

Indian scientists have decided to discontinue efforts to develop an AIDS vaccine, because mass production of the vaccine isn't possible to do efficiently.

CITING CQ GLOBAL RESEARCHER

Sample formats for citing these reports in a bibliography include the ones listed below. Preferred styles and formats vary, so please check with your instructor or professor.

MLA STYLE

Flamini, Roland. "Nuclear Proliferation." *CQ Global Researcher* 1 Apr. 2007: 1-24.

APA STYLE

Flamini, R. (2007, April 1). Nuclear proliferation. *CQ Global Researcher*, 1, 1-24.

CHICAGO STYLE

Flamini, Roland. "Nuclear Proliferation." *CQ Global Researcher*, April 1, 2007, 1-24.

Voices From Abroad:

SALVA KIIR MAYARDIT
President, South Sudan

It begins with you

“Don’t say the fight against HIV/AIDS is the responsibility of the other people, as the fight begins with you. I’m a soldier, and in my military training I was told to know my enemy before fighting it.”

Government of South Sudan (press release), December 2011

ALETTA MCNALY
HIV/AIDS coordinator
Polytechnic of Namibia
Namibia

Students are apathetic

“Because many students share this [“It won’t happen to me”] sentiment around the disease, it is a major challenge to get them to participate in HIV and AIDS initiatives on campus. This, plus stigma and ignorance coupled to the disease prevents many students from (i) taking the issue seriously, and (ii) being associated with any HIV and AIDS awareness groups.”

New Era (Namibia), June 2012

SUSHIL KUMAR MODI
Deputy Chief Minister
India

Victims should seek treatment

“People with HIV/AIDS should not be shy of talking about their disease. They should come forward and avail the treatment being offered. There is an urgent need to create awareness about the

disease and remove the social stigma attached with it.”

Times of India, September 2012

ELTON JOHN
Singer and AIDS activist
United Kingdom

Staying aggressive

“We’ve got this disease really by the scruff of the neck. But we cannot loosen that grip we have on it. If governments start backing out and stop funding, then the epidemic will start to balloon again. If we can destigmatize this disease once and for all, we are really going to beat this disease.”

Daily News Egypt, December 2011

JENS LUNDGREN
Professor of Health
Copenhagen University
Denmark

Hidden infections

“We already have a list of AIDS defining diseases, the vast majority of which indicate a weak immune system. This is a symptom of HIV and should lead to an immediate HIV test. We need to find people living with HIV sooner than is currently the case, but to do so requires that doctors and other healthcare professionals offer tests to people presenting (themselves) with diseases indicative of a hidden and undiagnosed HIV infection earlier in the course of the disease.”

Asian News International (India), March 2012

JAKAYA KIKWETE
President, Tanzania

Death sentence no more

“In the past, HIV/AIDS was considered a death sentence, but after scientific advancement and availability of medication, the disease is no longer a death sentence. We thank the U.S. for its continuous support in the fight against the deadly disease.”

The Citizen (Tanzania) December 2011

STEVEN NGAOJA
Minister of Social Welfare,
Gender and Children’s
Affairs, Sierra Leone

Embracing victims

“The intervention of faith-based organizations is recognized by my ministry. . . . They should take the message to their congregations. Religious leaders should come to terms that people living with AIDS should be embraced.”

Concord Times (Sierra Leone) January 2012

TSHEPO MAPONYANE
Physician, South Africa

Moving on

“I have been living with it for two years, but I only found out about six months ago. When I first found out, I was angry and sad, but I had to pick myself up. You must not let the disease consume you.”

Sowetan (South Africa) December 2011

MELES ZENAWI
Prime Minister, Ethiopia

A great opportunity

“We have before us a great opportunity [the 2011 international conference on AIDS in Africa, held in Ethiopia] for dialogue and exchange . . . about recent developments and research findings in prevention, treatment, care and support and to distill . . . implications for dealing with the AIDS epidemic in Africa and around the globe.”

Leadership (Nigeria) December 2011

