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Making PEPFAR: A Triumph of Medical Diplomacy

Harold Varmus

I was asked by the U.S.-UK Fulbright Commission to give a series of lectures in the United Kingdom in 2013 on the topic of diplomacy. This was surprising, as I am even marginally competent in only one domain of diplomacy—the forms of international relations that involve nations working together in fields of medical science and health. So I proposed to address the question of what accounted for the success—despite inherent difficulties and adverse circumstances—of three important and ambitious international initiatives in medicine and related science undertaken by the United States.

Although I was reasonably familiar with all three projects before preparing the lectures, I was not deeply informed about their origins and obstacles. As it happened, all three were focused largely or exclusively in Africa and depended heavily on the engagement of the U.S. government, including the National Institutes of Health (where I am now working for the third time). Yet the three were created in different decades (the late 1960s, the early 1990s, and the early 2000s), addressed different diseases (cancer, malaria, and HIV/AIDS),

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operated in different parts of Africa, and were (or are now) threatened by different kinds of political difficulties in their host countries or the United States.

While all three initiatives were built on scientific advances, professional training, and delivery of prevention and care, the emphasis was different in each case. This essay (with an accompanying slideshow) will cover the U.S. President's Emergency Plan for AIDS Relief (PEPFAR), which was conceived with the goal of ameliorating a pandemic, using new drugs and other strategies developed through medical research to prevent and treat HIV infection and AIDS.¹ A second essay to be published next year in Science & Diplomacy will cover the other two projects: the Malaria Research and Training Center in Mali and the Uganda Cancer Institute.

To explore the origins of each of the three enterprises, and their challenges and achievements, I interviewed several people who had participated in pivotal events and read widely, including articles they recommended. While I do not pretend to be a historian or to have developed definitive versions of these three adventures in medical diplomacy, I was able to develop narratives that seemed interesting and instructive. I have also tried to draw from these stories some lessons about diplomacy conducted through medical science.

In examining all three instances, I have been impressed by the profound differences between parts of the world with respect to their potential to improve health through research and modern medical care. Africa, in particular, is woefully deficient in medical care and in research facilities. Addressing these discrepancies with well-run programs is at the heart of the two essays.

Introduction: Medicine, Science, and Foreign Aid

Foreign aid remains a partly misunderstood and still controversial concept in American political life. Most citizens believe that the U.S. government spends much more than it does. Few understand that the concept extends from unambiguously humanitarian gestures, such as provision of medical or educational assistance, to the purchase of military equipment. Many say that aid is a manifestation of American generosity, a laudable character trait for a wealthy society. Others say that aid is wasteful, a liberal misconception, unaffordable in our current economic situation, or justified only as a self-serving exercise in "soft power." Other than responses to emergencies, as in the recent earthquake in Haiti, many people have trouble naming our great successes in foreign assistance, such as the Marshall Plan.

The fuzzy definitions and limited knowledge of U.S. foreign aid programs may help to explain why so few Americans—including my well-educated, generally liberal friends—know what the term "PEPFAR" represents (the President's Emergency Plan For AIDS Relief), let alone understand how successful the program has been and how it was conceived and carried out. Most are surprised to learn about the program's extraordinary success: by preventing and treating HIV infection on a large scale in the developing world, PEPFAR has turned around declining life expectancies in many countries and likely saved some countries—

even an entire continent—from economic ruin. Moreover, people are generally astounded to learn that it was invented, in a remarkably direct way, by President George W. Bush, whose reputation in international affairs is dominated by his war on terrorism, military interventions in Iraq and Afghanistan, and the antagonism he displayed to the United Nations and to several of our traditional partners. President Bush was deeply involved strategically at every stage—conception, development, launch, and implementation—of this large, complex, and hugely successful project.

A Short History of HIV/AIDS

In 1980 and 1981, several physicians reported cases of an apparently new immunodeficiency disorder—initially in Los Angeles and New York City, soon thereafter in other American locations, Haiti, and European cities. First described in gay men, the disease was also found in intravenous drug users and recipients of blood transfusions, and it was frequently associated with various kinds of unusual infections and some atypical cancers, such as Kaposi sarcoma and non-Hodgkin lymphoma.

After a period of uncertainty about the origins of the disease, in 1983 a new retrovirus, now called HIV (human immunodeficiency virus), was discovered and quickly established as the likely cause.² Soon thereafter, biochemical tests for the virus—and for immune responses to it—allowed accurate diagnosis of infection, protected patients from transfusions with contaminated blood, and revealed patterns of virus transmission.

Beginning in the mid-1980s, reports of AIDS cases from regions other than the United States, Europe, and the Caribbean escalated. It became apparent that a global epidemic was at hand, with a high prevalence of infection and disease in Africa and other, generally poor, countries in Asia and South America. At the same time, it was recognized that transmission of the virus frequently occurred through heterosexual practices as well.

Despite initial optimism about producing a vaccine, medical scientists were forced to acknowledge that means other than a vaccine would be needed to control the epidemic in the near future, and the focus turned to preventive methods, such as encouraging the use of condoms and providing clean needles.

However, a second strategy for diminishing the effect of the epidemic involved treatment: first, control of the consequences of immunodeficiency—especially the secondary bacterial, fungal, and protozoal infections—and, later, interruption of the growth of the infectious agent, HIV.

Therapies that directly target established viral infections have, historically, been difficult to develop. Nevertheless, numerous and increasingly effective drugs against the proteins required for multiplication of HIV have been produced. In part, this was possible because a wealth of information about retroviruses in

general was available from prior research on cancer-causing retroviruses found in birds and non-human mammals—another illustration of the power and reach of basic biological research. The successful development of antiretroviral drugs was also helped by reactivated interests in drugs studied earlier as possible anti-cancer agents (AZT was a prominent example) and by improved methods for developing inhibitors of proteins, such as those viral enzymes required for multiplication of HIV. Although initially only weakly effective in controlling the progression of AIDS and prone to limitation by viral drug resistance, such therapies became extremely potent by the mid- to late 1990s when combinations of drugs (often called HAART, for Highly Active Antiretroviral Therapy) were used to target more than one viral enzyme.

The drug combinations were initially expensive and used mainly in the United States and Europe. Still, the first clear signs of effective control of AIDS in poor countries arrived in the mid-1990s from clinical trials with single antiviral drugs, such as AZT and nevirapine, to prevent transmission of HIV from infected pregnant women to their infants during delivery. These studies inspired a few physicians, such as Paul Farmer and Jean William (Bill) Pape, both working in Haiti, to use antiretroviral drugs in poor settings to block infection of newborns and occasionally to treat some adult AIDS patients. An important fringe benefit became apparent; the availability of antiviral drugs encouraged adults to be tested for HIV. But in general, viral therapies such as HAART were viewed as being too expensive and too complicated for widespread use in resource-limited countries, where emphasis, if attention was given to HIV/AIDS at all, was placed on the cheaper, non-pharmaceutical methods for preventing infection.

At the turn of the millennium, when effective therapies against HIV had just become available in wealthy countries, great discrepancies existed in the numbers of people receiving antiretroviral drugs and people dying of AIDS between the advanced economies of North America and Europe and the poor countries of Africa and Asia.

Key Events on the Road to PEPFAR: The Influence of George W. Bush

Knowing what we now know, the PEPFAR story must begin with George W. Bush and his wife, Laura, and their interests in AIDS, Africa, and what Bush termed “compassionate conservatism.” According to his 2010 memoir, *Decision Points*, the two of them developed a serious interest in improving the fate of the people of Africa after reading Alex Haley’s *Roots* and visiting The Gambia in 1990.³ In 1998, while pondering a run for the U.S. presidency, he discussed Africa with Condoleezza Rice, his future secretary of state; she said that, if elected, working more closely with countries on that continent should be a significant part of his foreign policy. She also told him that HIV/AIDS was a central problem in Africa but that the United States was spending only \$500 million per year on global

AIDS, with the money spread across six federal agencies, without a clear strategy for curbing the epidemic.

Bush objected from the outset to existing foreign aid policies. He viewed them as paternalistic and judged largely by spending levels, without accountability for results, such as economic growth. In his opinion, the United States wrote checks to keep friendly regimes in power. His mantra became “partnership, not paternalism.”

These views were evident in his approach to the Global Fund to Fight AIDS, Tuberculosis, and Malaria, a program for rich country support of selected medical projects in the developing world. The Global Fund was conceived in 2000 at a meeting of the heads of the G-8 countries. Kofi Annan, the secretary-general of the United Nations at the time, was a major proponent, and Bush found common ground with him on the need to combat AIDS. But Bush disliked the multilateral funding scheme and the evaluation by dollars given, rather than by results achieved. Still, at the urging of Secretary of State Colin Powell and Secretary of Health and Human Services Tommy Thompson, the nominal heads of U.S. efforts against AIDS abroad, Bush supported it with a modest pledge of \$200 million—a pledge announced, with Annan and some African leaders by his side, in the White House Rose Garden on May 11, 2001. Even after the September 11 attacks four months later, Bush was again thinking about the Global Fund by early 2002. He agreed to increase the U.S. commitment to \$500 million, while noting that the response had been slow and ineffective, with AIDS still largely unchecked globally.

In the interim between these two actions on the Global Fund, on March 14, 2002, Bush announced the Millennium Challenge Account (MCA), a testing ground for a new approach to foreign aid in development that employed his principles of unilateralism and accountability. The idea was to identify worthy, corruption-free countries that use market-based economics and make investments in health and education that could be monitored for quantifiable results. The MCA was also endorsed by Bono, the leader of the musical group U2, who had become a well-known advocate both for the developing world and for spending on AIDS. Bono was by then acquainted with White House insiders, such as Rice and Joshua Bolton, the deputy chief of staff. With time, Bono became a significant sounding post for Bush and (in the words of one interviewee) a “faith-based leftist link to multiple factions.”

Shortly thereafter, on June 19, 2002, Bush took his first major unilateral action against HIV and AIDS when he announced his International Mother and Child HIV Prevention Initiative, with a down payment of \$500 million. Although accounts differ on when it occurred, Bush’s memoir claims that on that day he told Bolton, “Go back to the drawing board and think even bigger.”

So Bolton was charged with building a team to come up with a new and larger plan for confronting AIDS. The group he assembled included a few senior White House staff members—notably Gary Edson, who became a central figure in the planning of PEPFAR—and Anthony Fauci, the director of the National Institute of

Allergy and Infectious Diseases (NIAID) and a well-recognized world leader of HIV/AIDS research.

The instructions given to this small group by the White House were consistent with Bush's principles of foreign assistance: plan to use dollars to achieve concrete goals through treatment, prevention, and care, but not to do research; focus the plan on selected target countries that can make good use of the money; include measurements of the outcomes; and restrict the funds to combating one disease only (AIDS), not others such as malaria or tuberculosis. Fauci and his colleagues at NIAID were expected to come up with specific, defensible numbers for people in the target countries who would benefit from the plan and for the dollars needed to run it.

In approaching this task, Fauci was influenced by a trip that he had taken to Africa with Thompson and others early in 2002. During that trip, Fauci and his companions had observed the activities of two Ugandan organizations that were treating AIDS patients. The AIDS Support Organization, founded by Alex Coutinho, was delivering antiretroviral drugs by motorcycle to remote villages in a hub-and-spoke formation that allowed reliable daily delivery, and the Joint Clinical Research Center, the creation of Peter Mugenyi, was effectively treating adult AIDS-afflicted Ugandans who could afford the new drugs.

These initiatives convinced Fauci that treatment of advanced disease in African settings was feasible. Moreover, they offered a starting point for thinking pragmatically about the costs of treatment (drugs, delivery, personnel, facilities). To assist him in these estimates, he brought two staff members in his office into play: Mark Dybul, a young physician passionate about control of AIDS, who would a few years later become the leader of PEPFAR, and Ralph Tate, a member of NIAID's management staff with a background in operations. These two drew up lists of countries that might reasonably be included, based on the prevalence of HIV and AIDS and on prevailing social, economic, and political conditions. They then estimated the costs of prevention measures, provision of antiretroviral drugs, and other aspects of care such as treatment of secondary infections or support for children of parents who died, or were dying, of AIDS.

As revealed by some of the tables composed at the time, the projections for about fifteen countries, mostly in Africa, were bold and numerically specific. The plan was to treat seven million people for HIV infections, prevent ten million new infections, and provide other aspects of care for two million children and adults. This required informed estimates of the incidence of new infections, the prevalence of patients needing antiretroviral treatment, the existence of potential treatment facilities, and the availability of healthcare personnel, among other things. Such information was more readily available in some countries (such as Uganda) than in others with much poorer health systems and governments less committed to combating AIDS.

Some of the accounting was simplified by the removal of three large countries—China, India, and Russia—from the list, allegedly because President Bush opined that those countries had the money and personnel to take care of their own citizens. The other countries on the list were assembled by what Dybul has called a “bottom-up process,” starting with the African and Caribbean countries already enrolled in the president’s International Mother and Child HIV Prevention Initiative, then adding some others in Africa, based in part on criteria that had been used by the MCA to judge countries amenable to further development, such as corruption assessments from the World Bank, vaccination rates provided by the World Health Organization, and security concerns evaluated by the Central Intelligence Agency. (One Asian country, Vietnam, was placed on the list by Congress after PEPFAR was announced.)

To predict the cost of treatment, Fauci, Dybul, and Tate estimated that 20 percent of infected people would need antiretroviral drugs. They aimed to cover about 50 percent of the roughly forty million people who were infected worldwide and judged the cost per patient to be about \$1,500 per year, based on a report from UNAIDS (the Joint United Nations Programme on HIV/AIDS), numbers from Peter Mugenyi’s program in Uganda, and hopes for some modest reduction in drug prices. A recently published paper in *The Lancet* by John Stover of the Futures Institute and eight co-authors was used to estimate the costs of preventing infection through a combination of methods—including drugs to interfere with maternal-to-child transmission, provision of condoms, and public health instruction for women.⁴ The costs of other aspects of care were based on estimates for orphan support (approximately \$100 per child per year) and two visits per year to monitor CD4 cell counts, using data provided by the Ugandan Joint Clinical Research Center (JCRC).

Because these cost estimates were based on specific goals, the program was endowed from the outset with a set of metrics that allowed accountability. The White House team considered this to be a critical factor when it came time to ask Congress to fund a program that might cost as much as \$15 billion over five years. (Cheaper versions were also drawn up.) Moreover, the program was conceived as a collection of bilateral relationships in which the United States would work with each of the target countries.

Of special note to policy makers, the entire planning process was conducted under a blanket of strict secrecy, intending to avoid the interagency strife that Bush and others feared would result from a more open process. No leaders in Congress (which would ultimately need to fund the initiative), no officials at the United States Agency for International Development (where such assistance programs were normally conceived and implemented), and no cabinet members (including the heads of departments with major relevant investments) were informed. This had the potential to create hard feelings and to require apologies after PEPFAR was

announced publicly—as the president hoped to do at his State of the Union address in January 2003, just over seven months after he urged Josh Bolton to “think big.”

The Ramp-up to PEPFAR: Persuading the Resistant and the Wary

As might be expected, not all members of the White House senior executive staff were comfortable with the plans being designed to spend billions of dollars on AIDS in poor countries. Such staff were paid, in part, to protect the president from failure and were understandably concerned that such a large, ambitious plan might be difficult to finance and impossible to achieve, thereby exposing Bush not just to failure but also to ridicule and embarrassment. Predictably, especially since so few in other fiscally responsible positions were informed about the plans, the skepticism arose largely from the Office of Management and Budget (OMB) which was then led by Mitch Daniels. Immediate responsibility for oversight was assigned to Robin Cleveland, a senior OMB analyst who had significant experience with international assistance programs through earlier service as a congressional staff member.

Although those involved give different accounts of the depth of concerns about the plans for AIDS relief, it is fully understandable that the OMB would want to acquire some confidence in the feasibility of the plans before including them in the president’s FY2004 budget. In addition, political advisors would be expected to be wary about other sources of criticism: from the extreme right wing that might be unsympathetic to forms of foreign assistance that resembled parts of a liberal agenda; from Democrats and some AIDS activists who would be unlikely to applaud anything proposed by George W. Bush; and from components of the U.S. government that had been shut out of the planning process.

To explore the plans quickly and in greater depth, the president’s staff asked Fauci to invite a small group of physicians who had been deploying antiretroviral drugs in poor countries to speak directly and soon with skeptics and critics from the OMB and other parts of the White House. Not surprisingly, this required rapid changes of plans by the four far-flung people to whom Fauci issued invitations, but all of them sensed the significance of the meeting and agreed to come.

- Eric Goosby, a professor at the University of California, San Francisco, School of Medicine, had been treating a few AIDS patients with antiretroviral drugs in Rwanda and was passing through the Nairobi airport when the call came. He knew Fauci well, having served in the Clinton administration in the White House AIDS Office, and immediately re-routed to Washington.
- Peter Mugenyi, head of the Ugandan JCRC, had been providing AIDS patients, mainly wealthy ones, with antiretroviral drugs obtained through former colleagues at Case Western Reserve University School of Medicine,

where he had received postdoctoral training. Mugenyi was close to Uganda's President Yoweri Museveni and had ambitions to extend treatment to poorer Ugandans. He, too, sensed the opportunity and booked a flight to Washington.

- Paul Farmer (from Harvard Medical School and founder of the global health organization Partners in Health) and Bill Pape (a Haitian-born physician from Weill Cornell Medical College and founder of a community health foundation called GHESKIO) had both treated AIDS patients in Haiti but were en route to other destinations when Fauci called. They, too, immediately changed their plans and headed for Washington.

Fauci himself was not invited to the meeting with OMB—after all, it was his plan that was to be vetted—but he convened a dinner for the invited participants on the evening before, November 12, 2002, at Trattoria Sorrento in Bethesda, Maryland. Despite instructions not to discuss the subject of the forthcoming meeting, Fauci told his guests what was happening and speculated about the kinds of questions they might be asked. The ensuing conversation no doubt helped the newly arrived invitees to prepare for this critical event.

The following day, the four experienced hands met in the Eisenhower Executive Office Building in a group convened by Robin Cleveland. Cleveland was knowledgeable about foreign aid programs but also known as a rigorous critic of costly proposals and a strong defender of the president, and she reported directly to the OMB chief. Others who attended part or all of the meeting included Bolton, Edson, and the presidential advisor Karl Rove, but not President Bush and, of course, not Fauci, Dybul, or other NIH personnel. But Cleveland had invited Nils Daulaire, a respected medical scientist with deep experience in global health policies in Democratic administrations, then the head of the Global Health Council, to provide an informed but uninvolved perspective.

Accounts of this crucial meeting reflect differing points of view. Some of the outsiders recall penetrating questions about feasibility and affordability—questions that could be interpreted as critical or even hostile, but were defended by Cleveland and others from the White House as necessary to probe the credibility of an expensive proposal that could put the president, his administration, and the country at significant risk of failure. But all agree that two kinds of testimony helped to convince the president's representatives that the program should go forward. First, the evidence from those who had worked in the field that antiretroviral drugs and preventive measures could be deployed effectively and at reasonable cost, even in very poor settings, like Uganda and Haiti. Second, perhaps even more powerful, the visual demonstrations of how the new drug regimens could restore health—several participants alluded to this as “the Lazarus effect.” Even the most skeptical people in the room realized that such dramatic transformations would encourage others at risk in the target countries to determine their HIV

status and that treatment would return desperately ill people to productive lives as breadwinners and parents.

Afterward, Cleveland asked Daulaire for a confidential memo that evaluated the arguments made by the four visitors and the prospects for achieving the goals of the program with an affordable budget. Daulaire's report included rough calculations of costs that neatly dovetailed with the plans developed by NIAID. His descriptions of both short- and long-term plans for implementation accorded well with NIAID's estimates of existing materials, facilities, and personnel.

The timeline was tight—the president wanted a decision early enough to include the proposed program in his State of the Union speech to the joint session of Congress, planned for the end of January, only a couple of months away. To make this work and have the program incorporated into the president's budget for fiscal year 2004, as well as in the speech, a decision needed to be reached in December, only a few weeks after the meeting with OMB.

Knowledgeable observers recognized that something unusual was about to happen on the evening of January 28, 2003, when Peter Mugenyi was seen sitting next to Laura Bush in the First Lady's gallery in the House of Representatives. The president's announcement of the PEPFAR proposal—with its concrete numbers of people who would receive antiviral therapy, be protected from infection, and be cared for in other ways—was a surprise to many and was received differently in different settings: with skepticism by inveterate Bush distrusters, with enthusiasm by leaders and medical personnel in many afflicted countries, and with some resentment from those who had been excluded from the president's secretive planning process. The administration moved quickly to allay the concerns of bypassed colleagues in Congress and various agencies, and most came readily on board. Some intransigent opponents of the president would not be convinced until after the program was funded and had achieved its goals.

Implementing the Plan: Funding and Running PEPFAR

The first order of business was securing the funds, and the White House staff managed that well, thanks to the cooperative actions of the Republican leadership of Congress—Senate Majority Leader Bill Frist (a surgeon who spent time working in Africa each year and was known to be concerned about AIDS), Senator Richard Lugar (a member and later chairman of the Foreign Relations Committee), and Representatives Tom Lantos and Henry Hyde. The initial plan was to spend \$15 billion over five years. Although the actual spending is now thought to have been more like \$18 billion over those years, the numbers were close to right and the program showed results, so the deal was renewed with little change or opposition five years later, when the reduced prices for antiretroviral drugs, the major cost driver in PEPFAR, allowed an extended reach for the same amount of dollars.

Implementation of PEPFAR required a separate administrative center and effective leaders. The president initially appointed Randall Tobias, previously the CEO of the Eli Lilly, a pharmaceutical company, to run the PEPFAR program from the White House, with the title of ambassador.

On the advice of Fauci and Bolton, Bush also named Mark Dybul, the physician-administrator from NIAID who had played a central role in drawing the plans for PEPFAR and had a long-standing passion about confronting AIDS, as Tobias's deputy. Although spending and results were meager at first, as might have been expected, Tobias and Dybul put the program on a solid footing. Dybul then succeeded Tobias as the leader of PEPFAR in 2005, directing the program through a period of remarkable growth of staff, facilities, and activities in all three of its domains and serving until the inauguration of Barack Obama in early 2009.

The Obama administration moved the PEPFAR program out of the White House and into the State Department, where there was supportive direction from Secretary Hillary Clinton and Undersecretary Jack Lew. Eric Goosby, the UCSF physician who had worked for expanded efforts against AIDS in the Clinton administration and in Africa and was one of the witnesses at the pivotal meeting with the OMB in November 2002, replaced Dybul in 2009 and served until October 2013.

PEPFAR's Achievements

The achievements of the PEPFAR program have been remarkable, well-documented by outside evaluators, and hugely applauded throughout the advocacy community and the developing world. From the beginning, Bush asked for accountability in foreign assistance programs, and regular assessments by the Institute of Medicine (IOM) were built into the legislation to ensure an apolitical evaluation. In general, milestones have been met, the program has been enlarged (for instance, to include some research on implementation of medical assistance), the roster of PEPFAR countries has grown (to include eighty countries, forty-two of which are major beneficiaries, compared with the original fifteen), and spending plans have not been exceeded.

It is not my intention in this essay to describe the complex ways in which PEPFAR's jobs have been done—through an array of academic institutions, agencies, and contractors. But the spending patterns can be readily summarized: about 55 percent of the funds have been used for treatment (delivery of antiretroviral medications and the detection and monitoring of HIV infection), about 35 percent for prevention (e.g., provision of information and condoms), and about 10 percent for other kinds of care (such as antibiotics and orphanage support). By 2012, it was estimated that PEPFAR had supplied more than five million patients with antiretroviral drugs, up from 1.7 million in 2008; that nearly a million infants had been protected from HIV transmitted from their mothers; and that nearly fifty

million people had been tested for infection. Recognizing these accomplishments and many more, the most recent report from the IOM concluded that “PEPFAR has played a transformative role...(in)...the global response to HIV...” and cited “the pride, gratitude and appreciation expressed by partner country governments, implementing partners, providers” and others. Calling PEPFAR “a lifeline” that has restored hope, the report ended by saying that “PEPFAR has achieved—and in some cases surpassed—its initial ambitious aims.”⁵

One of the most dramatic aspects of PEPFAR’s success is the effect on life expectancy in African countries. After the arrival of the HIV/AIDS epidemic in the 1980s and prior to the initiation of PEPFAR in the early 2000s, life expectancies had been falling precipitously in African countries with a high prevalence of HIV infection. But the number of deaths in such countries fell steeply after the start of PEPFAR. Effects like these explain why PEPFAR has such high visibility in many African countries and has inspired so much gratitude toward the United States. Moreover, unlike previous programs that may have had a paternalistic taint, PEPFAR also achieved solid bilateral partnerships, thereby building and strengthening U.S. ties in that region.

PEPFAR’s Future

Of course, this is far from the end of the AIDS epidemic or PEPFAR, and numerous uncertainties remain about the program’s dimensions, governance, funding, and activities. From its inception, one goal has been to shift the financial responsibilities from the U.S. government to the host countries; that has occurred in some of the more affluent recipients, but certainly not in all. With the broadening of the list of beneficiaries and the concurrent budgetary crises in the United States, long-term funding plans are uncertain.

At the same time, one striking success of PEPFAR has been the construction and improvement of healthcare facilities, offering new opportunities to use those facilities to treat and prevent disorders other than HIV/AIDS. PEPFAR has made modest investments in “implementation science” to examine such possibilities, but the extent to which they should and can be pursued has yet to be determined. Coordination of PEPFAR’s efforts with those of other valuable campaigns against HIV/AIDS (and other diseases, including HIV-associated illnesses, such as tuberculosis) continues to be both a concern and an opportunity. The appointment last year of Mark Dybul, a former head of PEPFAR, as the leader of the Global Fund to Fight AIDS, Tuberculosis, and Malaria, should facilitate stronger collaboration between the two efforts. But other kinds of synergies have been more difficult to achieve, including in some cases harmonious relations with national health services that generally reimburse their employees much less well than external programs like PEPFAR are able to do.

Of course, the future of PEPFAR will be heavily dependent on the tools medical science is able to provide to efforts to control the HIV/AIDS epidemic. Advances in medical science were critical to the development of PEPFAR: identification of HIV as the cause of AIDS; sensitive tests to measure the virus and its effects on the immune system; drugs to limit the multiplication of HIV and to treat the unusual bacterial and fungal infections associated with AIDS; and effective tools for prevention, surveillance, and coordination of care. But the prospects for controlling the epidemic more effectively and perhaps more economically would be brightened significantly with an even partly protective HIV vaccine, better and cheaper drug combinations, or a practical form of immunotherapy. Without such advances, and with continuing rates of transmission of HIV, a need for PEPFAR-like programs could extend to the indefinite future, wearing down political will to maintain such programs and mandating takeover by host countries that are severely strapped financially. Even if HIV transmission could be halted today, many of those receiving HAART from PEPFAR will require drugs for fifty years or more unless there are further medical advances.

A Final Accounting

The success of PEPFAR raises interesting questions about the relevance of this story for confronting other diseases—or economic, educational, or other inequities—that afflict people in poor countries. PEPFAR was begun at a generally auspicious time. Advances in AIDS therapy, evidence that the new drugs could be used effectively in poor countries, and strong advocacy for doing so helped to change perceptions about the feasibility of a targeted program. Furthermore, despite 9/11 and pending wars in Afghanistan and Iraq, the United States was doing well economically, and a philanthropic plan by a Republican president had political advantages.

One way to think about this is to ask why a PEPFAR-like effort was not begun by President Bill Clinton, who has demonstrated in many ways, especially through the activities of the Clinton Foundation, his strong interests in improving health in the developing world. But during the later years of the Clinton administration, effective therapy against HIV was just coming into common practice even in advanced economies, the costs of such therapy favored limiting efforts in poor countries to less expensive preventive measures, and the political landscape—with the president in the midst of impeachment proceedings—did not favor the passage of ambitious programs that he initiated. As a result, while Clinton strongly supported research on HIV/AIDS, spoke powerfully about domestic efforts to control the disease, and developed small exploratory programs in three African countries, a plan with the ambitious scope of PEPFAR was inherently unlikely.

The success of PEPFAR prompts the question of whether similarly designed programs might be effective against such long-standing scourges as malaria or

tuberculosis, against newly recognized health threats in poor countries (such as obesity, diabetes, or certain cancers), or against deficiencies in domains other than health, such as transportation, education, agriculture, or manufacturing. There is no simple answer to this question. Some of the lessons learned from the PEPFAR experience about design of such programs should be applicable to other situations: careful planning, bilateral rather than multilateral relationships, objectives that are measurable and highly likely to be achieved if the investment is made, and mandated evaluations. But a variety of conditions are required to conceive such plans, to get them through the political process, and to implement them successfully. Engaging appropriate experts and commonsensical advisors is also a probable prerequisite for success. Despite these considerations, the triumphs of PEPFAR should inspire further efforts to confront carefully selected problems of the developing world with similar determination and success. **SD**

Endnotes

- For additional reading, see:
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- The discovery of the virus and the development of tests for it embroiled me briefly in international diplomacy in two settings. In both, I was attempting to help resolve conflicts emerging from arguments between U.S. and French scientists who claimed to have discovered the virus—Robert Gallo and his colleagues at the NIH and Luc Montagnier and his colleagues at the Pasteur Institute. The disagreements concerned the rights conferred by priority of discovery: assignment of credit, naming of the discovered object (the virus), and distribution of royalties from patents on diagnostic tests. First, in my capacity as a retrovirologist, I chaired an international committee that named the virus HIV in the mid-1980s. Second, as director of NIH, I helped to renegotiate a settlement with the Pasteur Institute in 1994 so that the royalty stream from the HIV test kit could be equally shared between the United States and France. Details of these encounters are presented in my memoir, *The Art and Politics of Science* (W. W. Norton, 2009).
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