

Engaging India

The U.S. Role in India's Fight against HIV/AIDS

A Report of the
CSIS Task Force on HIV/AIDS

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Contents

Acknowledgments.....	IV
Executive Summary	V
India and the United States: Essential Partners on HIV/AIDS	1
Government Collaboration	
Private Nonprofits	
Universities and Scientific Establishments	
Business	
Indian-American Initiatives	
Multilateral	
Making the Most of India-U.S. Cooperation	24
U.S. Assets	
Underutilized Assets	
Challenges	
Recommendations.....	32
Appendix. Additional Sources of Information.....	43

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Executive Summary

The HIV/AIDS epidemic is both a major international issue for the United States and one of the most serious questions hanging over India's future, extending beyond public health into India's economic and social prospects. Since 1986, when the first case was reported in India, HIV has spread rapidly from urban to rural areas and from high-risk groups to the general population. Indian government figures released in May 2005 estimate that there are 5.19 million people infected with HIV in India. Currently, HIV prevalence is estimated to be 0.9 percent of the adult population (between 15 and 49 years of age). If the epidemic continues to expand, HIV/AIDS could bring to India the same devastation it has to sub-Saharan Africa.

India's AIDS control program in its present form was established in 1992, and since then the United States has been one of the major international supporters of the program. The CSIS Task Force on HIV/AIDS, as part of its ongoing work on U.S. policy toward the HIV/AIDS epidemic in India, organized a workshop at CSIS on April 26, 2005, to assess this aspect of U.S.-India cooperation. This report draws from that workshop and extensive discussions with Indians and Americans involved in HIV/AIDS work, from the various government agencies in both India and the United States, private universities, nongovernmental organizations (NGOs), foundations, businesses, and Indian-American organizations. It analyzes how Indians and Americans have worked together in meeting the HIV/AIDS challenge. The report presents a brief snapshot of the principal types of U.S.-Indian cooperation on AIDS, both inside and outside of the government; an assessment of their strengths and challenges; and recommendations for strengthening their effectiveness.

The United States is the country that has invested the most in India, from public and private sources combined, to meet the challenge of the AIDS disease. India is not a focus country under the U.S. President's Emergency Program for AIDS Relief (PEPFAR). Outside of the PEPFAR countries, however, the India program is the largest bilateral program supported by the United States. In fiscal year 2004, the U.S. government committed approximately \$27.5 million to fight HIV/AIDS in India. The U.S. government is also involved in the AIDS fight in India through organizations like the World Bank, UNAIDS, and the Global Fund to Fight AIDS, Tuberculosis, and Malaria, which obtain a substantial portion of their funding from the U.S. government.

The U.S.-India partnership goes beyond just sizable bilateral assistance. In fact, one of the striking differences between India and other "second wave" countries affected by the HIV/AIDS pandemic is the broad and deep-rooted U.S. government involvement in the health sector. U.S. government agencies such as U.S. Agency for International Development (USAID) and its predecessor agencies have been working in India almost since India's independence and have made a significant investment in building up India's scientific education capacity.

The other major U.S. government player in HIV/AIDS projects is the Department of Health and Human Services (HHS), working through a variety of different agencies. Major programs of the National Institutes of Health (NIH) include research grants, vaccine development through the U.S.-India Vaccine Action Program, and the HIV Prevention Trials Network. India is one of the major participants in the AIDS International Training and Research Program of the Fogarty International Center, which helps build capacity in India and in U.S. universities, as well as create valuable linkages between Indian and U.S. scientific institutions. The Centers for Disease Control and Prevention (CDC) have supported improvements in important laboratories and other facilities, as well as operational research connected with both prevention and treatment.

Outside the government, private U.S. philanthropic organizations like the Bill and Melinda Gates Foundation have invested significant resources to shore up India's expenditure on public health. The Gates Foundation has committed \$200 million over five years to its project in India, making it at present the largest single donor to India's program. Its *Avahan* program (Sanskrit for "call to action") has devoted most of its resources to focused interventions in the six states known to have high HIV prevalence and along national highways.

Most U.S. foundations, unlike the Gates Foundation, are not themselves program operators. Rather, they make grants to operating organizations, which may be local or international NGOs or research organizations. U.S. and other international foundations have been a major source of funding for projects carried out by India's large network of impressive NGOs. The one big exception is the Clinton Foundation, which partners directly with the government and has focused on improving capacity and systems.

India's wealth of scientific talent has attracted an impressive list of U.S. universities to carry out research with Indian counterparts. Some of this work is funded by NIH; some is privately funded. Their work runs the gamut from development of new medications or vaccines to economic, social, and operational research that broadens understanding of the dynamics of the epidemic. Many U.S. universities bring a multidisciplinary approach to their work in India, which is especially valuable since many of the Indian institutions involved in AIDS research have found it difficult to build bridges across disciplinary boundaries.

The 2-million-strong Indian-American community is also mobilizing to give a helping hand to the fight against AIDS. One of the key players in this effort is the American Association of Physicians of Indian Origin (AAPI). It is affiliated with two hospitals, a medical school, and a nursing school in India through which it provides outreach, education, research, and treatment services. Although this may sound small compared with India's population and geographic size, its impact will be felt in the coming years. Indians or students of Indian origin comprise approximately 12 percent of medical students in the United States, vastly exceeding their percentage of the population at large. Even if a small fraction of these students are convinced to make a contribution to India's fight against the disease, it would result in significant mobilization of resources.

U.S. engagement in India on HIV/AIDS benefits from a number of strengths. U.S. program managers and scholars are respected for their professionalism and expertise. A number of joint scientific programs over the years, including many in the health sector, have allowed U.S. researchers to build relationships of mutual professional respect with their Indian counterparts. Hundreds of Indian medical professionals have been trained in the United States through NIH-sponsored programs. U.S. degrees are highly sought after and command enormous respect in India.

In return, India brings important strengths to the table as well. Its scientific talent and vibrant civil society are well known. Even the best Indian medical schools cannot compete with the resources of ordinary medical schools in the West, but they graduate well-qualified medical professionals.

The other strength that India enjoys is its world-class pharmaceutical industry. Indian drug manufacturers have had a major impact on the market for antiretroviral drugs (ARVs), and several Indian-made ARVs are currently being reviewed by the U.S. Food and Drug Administration (FDA). They are also significant manufacturers of bulk pharmaceutical inputs. Companies like Ranbaxy and Cipla are playing a major role in the international fight against AIDS, especially in African and Caribbean countries. Ironically, the number of people receiving ARVs in India is still small, though it is expected to grow sharply in the next few years, with much of the drug supply coming from these companies.

On the other side of the ledger, the contribution of the U.S. business community is still rather modest, mirroring the relatively slow progress toward establishing AIDS programs in much of Indian business. Second, in a country where close to 80 percent of medical care is provided by the private sector, outside the government program, the HIV/AIDS program has made few inroads into the private medical sphere. There are some shining exceptions, notably the nongovernment YRG Care organization in Chennai, whose director identified the first HIV case in India and has remained one of the national leaders in fighting the epidemic ever since. Another exception is the network of hospitals and health clinics working with AAPI in Andhra Pradesh. But this is clearly an area where much more needs to be done.

There are other challenges too, which have a bearing on U.S. engagement in India's fight against AIDS. Indian policymakers are still trying to find the best way to integrate AIDS-specific programs in the overall "national health mission." This integration needs to go beyond the health sector. AIDS-prevention messages need to be part of school curriculum, the legal system, public communications, and other aspects of daily life. India also faces the problem of scale and needs to expand, adapt, and replicate successful programs and target high-risk populations currently not under the microscope. For instance, most of India's success stories involve work done with sex workers and truckers. Meanwhile, coverage of other vulnerable populations, such as intravenous drug users and homosexuals, is much thinner. Migrant workers, another important vector for the transmission of the disease, have also not gotten the required attention.

India's current surveillance system is impressive given the sheer size and population of the country. But it needs to be deepened to provide more fine-grained data for smaller geographic units before India's health managers can get an accurate picture of the pandemic in India. The big northern-belt states with enormous populations and weak infrastructure, such as Uttar Pradesh and Bihar, are particularly worrisome. In addition, India's medical institutions and universities are hampered because of their long-standing practice of relying primarily on government grants. Private-sector money for university research is small and restricted to a few elite engineering colleges. As a result, researchers may leave in frustration to seek better opportunities in the West—mostly in U.S. universities.

Capacity building is also an issue in India. Even in a country with the professional talent that India has, lack of capacity—medical, managerial, and infrastructure—often puts a speed bump in the way of an effective response to the AIDS pandemic. India's public health system desperately needs effective managers to run large-scale programs. Outside the government, NGOs that do operational work also need management talent as well to run their projects effectively and to scale up successful programs. Very few students from India's top management schools opt to work for the nonprofit sector. India also needs to train more doctors, nurses, and medical professionals to care for HIV-infected people.

There is no doubt that by working together the United States and India can make a substantial contribution to the fight against AIDS, not just in India but other parts of the world as well. Such collaboration serves the national interests of both these countries. Since 9/11, the United States has paid more attention to events in South Asia. India, a vibrant secular democracy with a significant capacity to mount relief operations (as witnessed after the December 2004 tsunami disaster), can play an important role to ensure stability in the region. Therefore, it is in the national interest of the United States to ensure that India's internal stability is not jeopardized by the AIDS epidemic. For Indian policymakers, a full-blown AIDS epidemic is perhaps the gravest danger to the nascent economic expansion that promises to lift millions of Indians out of poverty and increase the status and influence of the country.

Recommendations

The recommendations in this report recognize that there is already significant interaction between the two countries on HIV/AIDS and other health issues. This collaboration needs to be expanded, and it needs to be structured as a partnership between equals. Most fundamentally:

- The United States and India should weave into all their cooperation on AIDS two key ideas: joint pursuit of scientific excellence, and joint commitment to strengthen international public health. These should also be high-profile aspects of the new Indo-U.S. relationship, going beyond the HIV/AIDS field.

- The U.S. government should approach India not just as the recipient of resources, but also as a major contributor to the global fight against AIDS. It should at the same time increase the resources it devotes to India's HIV/AIDS problem. Whether this should be done by adding India as a "focus country" to PEPFAR is less important; the important thing is managing the program in a truly collaborative style and expanding its size.

Other more specific recommendations include:

- Maintaining an interdisciplinary bias in U.S.-Indian work on HIV/AIDS;
- Deepening the engagement of the business community in both countries, including exploring more effective ways to take advantage of India's pharmaceutical sector;
- Expanding partnerships with India's private medical sector; the Indian-American community may be especially well placed to work in this area.

Another recommendation that could be especially powerful is for the U.S. and Indian governments to put their weight and resources behind the creation in India of new Institutes of Public Health, with substantial ties to universities in the United States (and elsewhere) and with partly private financing and an autonomous management structure along the lines of the Indian Institutes of Management. The purpose of these institutes would be to serve as centers of world-class expertise on public health as a whole, but they would have specialized departments dealing with India's major public health problems, including HIV/AIDS. The experience of both the U.S. government and a number of U.S. universities in India suggests that creating an institution is the most effective way of creating durable change. It would also be an ideal way to institutionalize an Indian leadership role in creating expertise and training people from the rest of the world as well. A proposal to this effect has been under consideration in the Indian government for over a year. This could be the flagship of the new model of India-U.S. cooperation.

India and the United States: Essential Partners on HIV/AIDS



The United States has been an active participant in the world's response to the HIV/AIDS epidemic ever since the disease was identified in the early 1980s. Awareness of the disastrous consequences of the epidemic in Africa goes back to the late 1980s. By the early 1990s, U.S. officials were paying more attention to the appearance of the disease in Asia. As the new century dawned, first the Clinton administration and then the Bush administration asserted a strong U.S. interest in responding to the epidemic, characterizing it as a national security issue. The Bush administration significantly increased the U.S. financial contribution to fighting the epidemic. Its principal instrument was the President's Emergency Plan for AIDS Relief (PEPFAR), to which President George W. Bush pledged to commit \$15 billion over five years. This included a substantial commitment to the Global Fund for AIDS, Tuberculosis, and Malaria, as well as bilateral programs. The bulk of PEPFAR's bilateral funding goes to 15 designated "focus countries"—12 in Africa, 2 in the Caribbean, and 1 in Asia (Vietnam). For other countries, regular funding mechanisms have also been used.

India's complicated socioeconomic status, conservative attitudes toward sex and sexuality, large-scale migration, and huge population of marginalized people make it extremely vulnerable to the HIV/AIDS epidemic. Since 1986, when the first case was reported in Madras, HIV has spread rapidly from urban to rural areas and from high-risk groups to the general population. Government figures released in May 2005 estimate that there are 5.19 million people infected with HIV in India. Currently, HIV prevalence is estimated to be 0.9 percent of the adult population (those between 15 and 49 years of age). The government figures suggest that the rate of growth nation-wide has slowed down, and there is good evidence that prevalence is falling in the state where HIV was first identified, Tamil Nadu. However, the newest government figures also suggest that the epidemic may be accelerating in some of the most seriously affected states.¹

The HIV/AIDS epidemic is thus both a major international issue for the United States and one of the most serious questions hanging over India's future, extending beyond public health into India's economic and social prospects. This report examines how Indians and Americans have worked together to meet this challenge. It presents a brief snapshot of the principal types of U.S.-Indian cooperation on AIDS, both inside and outside of the government; an assessment of their strengths and challenges; and recommendations for strengthening their effectiveness.

This report is presented at a time when U.S.-Indian relations are dramatically intensifying. The leaders of both countries are conscious as never before of how

¹ Indian Ministry of Health and Family Welfare press release, May 27, 2005, http://www.rxpnews.com/medicalnews/healthcare/india/article_1564.shtml.

their interests overlap. At the government level, the dialogue on political and security issues is both detailed and sophisticated. The dimensions of the private relationship between the two countries are also reaching for new heights, with the United States as the principal partner for India's expanding trade and the principal source of its growing foreign investment. The Indian-American community, 2 million strong, technically and professionally skilled, and increasingly active in U.S. public and political life, gives this relationship a special bond.

India has a window of opportunity to turn the HIV/AIDS epidemic around, and the United States has an interest in helping to make this happen. Both India's growing and diverse ties with the United States and its increasing prominence in world affairs strengthen the importance of their collaboration in this vital area. We hope that the ideas presented here will help channel into effective paths the talents of those in both countries who want to end one of the greatest scourges to afflict the world.

Government Collaboration

U.S. government support for efforts to fight the HIV/AIDS epidemic in India comes primarily from the U.S. Agency for International Development (USAID) and from several parts of the Department of Health and Human Services (HHS). India is not a PEPFAR focus country, but the India program is the largest program supported by the United States outside the focus countries. In fiscal year 2004, the U.S. government committed approximately \$27.5 million to fight the HIV/AIDS epidemic in India. Somewhat over half that amount came from different elements of HHS, including \$5 million from the Centers for Disease Control and Prevention (CDC) and \$13.9 million from the National Institutes of Health (NIH); most of the remainder, \$15.5 million, came from USAID. Planning figures for fiscal year 2005 include \$20.5 million from USAID and \$5.6 million from CDC.

Agencies of the HHS were among the earliest sources of U.S. funding for collaborative research in India. Their collaborative relationships go back several decades. The department has funded a number of cooperative health projects in areas such as polio, malaria, leprosy, tuberculosis, cancer research, and recently HIV/AIDS.

National Institutes of Health

Collaboration between NIH and the Indian government began with the food aid program under Public Law 480, which used U.S.-owned Indian rupees (payments to the United States by the Indian government for concessional grain sales in the 1950s and 1960s) to support scientific, technological, educational, and cultural activities.

In 1986, the remaining rupees were rolled into a single fund, the U.S.-India Fund (USIF), and allocated to individual technical agencies on an annual basis. The administration of this fund was the responsibility of the U.S. Department of State and the Science Office in the U.S. embassy in New Delhi. Hundreds of science and technology (S&T) projects were initiated with funds from the USIF

involving American and Indian scientists in all fields of S&T. Since 1987, the NIH has supported research projects and workshops on a wide variety of biomedical research topics, including oral cancer, blindness prevention, nuclear magnetic resonance, infectious diseases, and contraceptive development. In May 2000, the USIF was succeeded by the India-U.S. Science and Technology Forum.

Peer-reviewed Grants

Approximately 26 percent of all NIH peer-reviewed research grants awarded to India were for HIV/AIDS-related research. In FY 2004, there were over 40 HIV-related NIH projects involving India. Many of these represent multiyear, multination projects. The majority of funds to support these projects were awarded to U.S.-based investigators to collaborate with research partners in India and elsewhere. A limited number of projects were awarded directly to investigators in medical or academic institutions in India. All NIH research is reviewed and awarded through the peer-review system. NIH-sponsored AIDS projects involving Indian partners include research on HIV vaccine development, behavioral interventions, identifying epidemiological profiles, and operational research.

NIH also collaborates with the National AIDS Research Institute (NARI), India's premier AIDS research organization, which is part of the Indian Council of Medical Research and maintains a register of the different HIV subtypes present in India. NARI has extensive partnerships with research institutions outside of India, including an important collaboration with the International AIDS Vaccine Initiative that is described later in this report.

U.S.-India Vaccine Action Program

NIH also collaborates with the Indian Ministry of Science and Technology and Ministry of Health through the Indo-U.S. Vaccine Action Program (VAP), a bilateral program started in 1984 that supports collaborative research by U.S. and Indian scientists on vaccines, immunodiagnostic reagents, and other issues related to vaccine development. The VAP includes cooperative activities with CDC and the U.S. Food and Drug Administration (FDA).

Funding for the program is provided by the Indian Department of Biotechnology and by NIH for the United States. Research awards are made to U.S. institutions through the National Institute of Allergy and Infectious Diseases (NIAID) Division of Microbiology and Infectious Diseases (DMID). Awards to Indian institutions are made through the Indian Department of Biotechnology. In addition to traditional public health scourges such as hepatitis, typhoid, tuberculosis, and malaria, VAP has also included HIV/AIDS research, including the development of one of the early vaccine candidates by a scientist working at NARI. Two sites in India, NARI in Pune and the nongovernment YRG Care in Chennai, have submitted applications to become clinical trial units under a new NIAID initiative.

HIV Prevention Trials Network

HIV Prevention Trials Network (HPTN) is a collaborative effort that involves a number of NIH institutes and centers, led by the National Institute of Allergy and Infectious Diseases (NIAID) Division of AIDS in cooperation with the National Institute of Child Health and Human Development (NICHD), National Institute on Drug Abuse (NIDA), National Institute of Mental Health (NIMH), and in collaboration with the Fogarty International Center (FIC). The HPTN's research agenda focuses on six research areas—antiretroviral therapies, behavioral interventions, microbicides, perinatal interventions, sexually transmitted disease (STD) control, and substance abuse. The research in each area is led by a dedicated multidisciplinary group under the direction of a recognized leader in the field. The network is composed of leading scientists and researchers from federal agencies and U.S. and foreign universities. In India, the network has a number of sites, particularly in Chennai (Y.R. Gaitonde Center for AIDS Research and Education, better known as YRG-CARE) and Pune (the National AIDS Research Institute, or NARI), for conducting clinical trials including vaccines. In addition, NARI and YRG-CARE have also conducted several Phase I trials for promising microbicides (Pro 2000 and Buffergel) as part of the HPTN.

Centers for AIDS Research

The Centers for AIDS Research (CFAR) program at NIH provides administrative and shared research support to enhance high-quality AIDS research projects through core facilities that provide expertise, resources, and services at 20 U.S. universities to conduct HIV/AIDS research abroad. This program was originally funded by the Division of AIDS, National Institute of Allergy and Infectious Diseases (NIAID) in 1988. The CFAR programs are now cofunded by several additional NIH Institutes: the National Cancer Institute (NCI), NICHD, NIDA, NIMH, National Heart, Lung, and Blood Institute (NHLBI), in collaboration with the National Center for Complementary and Alternative Medicine (NCCAM) and FIC. Some of these institutes have programs in India and are profiled in the universities and scientific establishments section below.

Infrastructure Support

In addition to providing research support, NIH also provides resources for equipment and technical assistance. For instance, it provided a grant of \$3 million for a new nonhuman primate breeding facility near Mumbai in Maharashtra state. NIH has also established an International Center for Excellence in Research (ICER) site at the Tuberculosis Research Center (TRC) in Chennai in Tamil Nadu state. The laboratory, while geared mostly to tuberculosis (TB) work, will also focus on the interaction of HIV with other infectious diseases, especially TB.

Capacity Building

The AIDS International Training and Research Program (AITRP) of the Fogarty International Center supports HIV/AIDS research training to strengthen the capacity of research institutions in several countries, including India. The goals of this program are to build multidisciplinary biomedical, behavioral, and social

science research capacity for the prevention of HIV/AIDS-related infections and for the integration of prevention programs with care and treatment projects. Grants under this program are awarded to U.S. universities that partner with institutions in India, bring Indian scientists to the United States for advanced training, provide in-country training in India, and conduct collaborative research projects. Since about 1993, nine U.S. institutions have received AITRP grants that include projects in India. While most of the focus has been on medical and scientific skills, this program has also encouraged the development of managerial and project implementation skills.

At present, the participating U.S. universities collaborating through the AITRP in India include Brown University, Johns Hopkins University, New York University, Yeshiva University, the University of Alabama at Birmingham, the University of California at Berkeley, the University of California at Los Angeles, the University of North Carolina, the University of Pittsburgh, and the University of Washington. Most have other programs in India and have several faculty members from different disciplines with a continuing interest in India. Grants are for five years and in most cases have been renewed, thus encouraging the establishment of long-term professional relationships. Approximately 100 Indian health scientists, clinicians, and health care workers have been trained in the United States through the AITRP. The U.S. universities that work with them continue the relationship after the scientists return home. The result has been a remarkable professional network in both India and the United States.

Other NIH Cooperation

NIH also provides support for domestic and international conferences and meetings that bring together different stakeholders. Recently, NIH, in collaboration with the U.S. embassy in New Delhi and the CDC, provided financial and technical support for the first National Conference of the AIDS Society of India in New Delhi in April 2005.

The NIH also recently sponsored a grantsmanship workshop bringing AIDS researchers from India, Pakistan, and Bangladesh to Bethesda, Maryland, for an intensive two-day meeting. The workshop provided the foreign researchers with a unique opportunity to: (1) learn first hand about the AIDS-related research programs supported by the NIH; (2) establish potential collaborations with NIH-sponsored AIDS researchers; and (3) gain experience in preparing an NIH grant application by participating in a mentoring session with NIH program staff responsible for AIDS research and training programs and NIH grantees.

Centers for Disease Control and Prevention

The Centers for Disease Control and Prevention programs—about \$5 million in 2004—are an important contributor to the intellectual leadership of the U.S. government's work on AIDS in India. They have provided primarily technical support for a range of HIV/AIDS activities, including capacity building in the public sector health system, improving key laboratories, exploring advanced surveillance techniques, and working with community groups. CDC has

representatives in New Delhi and in Chennai and is also working in Maharashtra and Andhra Pradesh. The impact of their contribution goes beyond its relatively modest funding. In 2002, CDC signed an agreement with the state government of Tamil Nadu to support HIV/AIDS prevention and care activities. Since then CDC has helped improve the infrastructure and capacity for HIV/AIDS care at the Tambaram Government Hospital for Thoracic Medicine (GHTM) in Chennai, which is one of the major centers for the distribution of antiretroviral drugs in Tamil Nadu. CDC has funded a new, state-of-the-art laboratory at Tambaram. It has helped the hospital staff to develop a computerized patient medical record system. It also supported training activities for 197 health care workers from 18 India medical colleges at the hospital.

CDC's work in Tamil Nadu has also focused on the concept of "care closer to home" to reduce patient load at the hospital and increase quality care in the community. It has supported, with the Indian Network of Positive People (INP+), one of the first family counseling centers in the country at GHTM. It provides patients and their families with HIV/AIDS prevention and care education from trained counselors. This center links patients to community resources through district-level networks (DLNs), which provide community-based care by continuing treatment, care, and support to patients and families following hospital discharge.

CDC has also upgraded laboratory facilities at a nongovernment facility in Chennai, YRG Care, whose director, Suniti Solomon identified the first HIV-positive case in India in 1986, and which has become one of the premier NGOs doing pioneering HIV prevention, care, and treatment in the country. YRG's hospital is on the campus of Voluntary Health Services (VHS), a large voluntary hospital that has played host to a remarkable variety of nongovernment health programs, including AIDS Prevention and Control Organization (APAC), the major NGO that has worked with USAID in its HIV/AIDS-prevention programs. In addition, CDC is also supporting other HIV/AIDS care and prevention activities and providing technical advice to state AIDS control organizations in the six high-prevalence states. While CDC's work on HIV/AIDS in India is relatively recent, it has institutional relationships there going back into the 1950s. In particular, CDC scientists were central to the smallpox eradication campaign in the 1960s and 1970s, and their reputation for professional skill and for developing collegial relationships has been an important element in their effectiveness in working on HIV/AIDS.

U.S. Agency for International Development

The U.S. Agency for International Development and its predecessor agencies have been working in India almost since India's independence. India has always been a major recipient of international economic aid, but because of its large size, economic aid has generally been a smaller share of India's economy than in other developing countries. USAID was a central partner in India's Green Revolution in the 1960s. During that same period, USAID made a significant investment in building up India's scientific education capacity. USAID, like its counterparts in a

few other countries, was invited to “adopt” one of the Indian Institutes of Technology (IITs), in Kanpur. For a number of years, USAID funded not just the facility but a regular stream of visiting faculty. The IITs as a group are still considered among India’s finest educational institutions and have helped produce one of the largest groups of scientifically trained manpower in the world.

The United States suspended official economic assistance in 1971 during the India/Pakistan war, except for food aid. Aid was resumed in 1978. During the 1980s, USAID’s program began to emphasize science and technology. Its programs in the 1990s focused on economic liberalization and the global issues of population growth, HIV/AIDS, climate change, and the status of women.

USAID spent \$15.5 million in fiscal year 2004 for AIDS-related work in India, up from \$13.5 million in 2003. Total USAID health spending in India in 2004 stood at approximately \$50 million. Its tentative budget for HIV/AIDS work for 2005 is \$20.5 million. USAID’s strategy includes a strong emphasis on limiting transmission of HIV/AIDS among at-risk groups; integration of prevention activities in urban areas into other health services and food aid programs; and strengthening the capacity of NGOs not only in prevention but also in treatment, care, and support. In practice, most of USAID’s funding has gone to prevention activities, though USAID hopes to increase the amounts going to care and treatment. Smaller allocations have supported work with orphans, laboratory improvement, surveillance, and operational research.

By agreement with the government of India, foreign donors have concentrated their work in particular states, and USAID has worked primarily in Tamil Nadu, Maharashtra, and Pondicherry. In Tamil Nadu, the AIDS Prevention and Control (APAC) project, started in 1995, has been the primary vehicle for USAID’s work, and is credited with a substantial reduction in high-risk behavior by truck drivers and other high-risk groups. The project is implemented primarily through Voluntary Health Services, which in turn makes grants to NGOs. These in turn promote and distribute condoms, spread education about risky sexual behavior patterns, and disseminate information about the treatment of sexually transmitted diseases. Peer education is an important feature of these projects. APAC also supports an impressive array of behavioral research, and includes funding for passing on the lessons learned from program activities both to other participants in APAC and beyond. The Indian government is trying to persuade APAC to extend its activities beyond Tamil Nadu, but APAC is proceeding cautiously, to avoid being overextended.

USAID’s second major state for AIDS work is Maharashtra, another high-prevalence state. USAID has been working through the “Avert” program to improve the state government’s capacity to deal with the pandemic. The seven-year project, which began in 1999, focuses on improving the quality and availability of services and products to reduce the risk of transmission and alleviate the impact of STDs, HIV/AIDS, and other related infectious diseases in the high-risk populations (i.e., commercial sex workers and their clients and STD patients).

Besides these state-specific projects, USAID supports major NGO activities by Family Health International (FHI) to reach out to children affected by AIDS in high-risk communities across India and by Population Services International (PSI) in 12 major ports in eight states of India where prevention activities, including voluntary counseling and testing, are focused on high-risk groups. These projects, located in the six high-prevalence states, especially Maharashtra and Andhra Pradesh, and in New Delhi, provide HIV/AIDS prevention and support services to affected families in low-income neighborhoods. Efforts include communication activities for prevention of HIV infection, risk reduction of sexually transmitted infections and HIV among vulnerable and at-risk children, home-based care for people affected by the disease, economic support for adults, and the teaching of professional skills. FHI and PSI also both carry out important behavioral and operational research whose results influence the design of future USAID projects.

USAID has been involved in health, family planning work, and HIV activities in other parts of India, such as the large northern states of Uttar Pradesh, Bihar, and Jharkhand, and is looking at ways of further integrating AIDS prevention into established health programs there.

U.S. Department of Defense

The Department of Defense has conducted professional consultations on the impact and management of HIV/AIDS in the military in the course of its normal contacts with Indian counterparts. It has been allocated \$500,000 for HIV/AIDS work for fiscal year 2005. The Center of Excellence under the Pacific Command has been the primary vehicle for this activity, and a seminar in which it participated in August 2004 provided the occasion for a rare public discussion in India of the impact of the disease on the Indian military.

Private Nonprofits

The list of U.S. foundations and nonprofit organizations working in India would fill a book. The ones described here represent some of the largest players, and the approaches they have taken to their work are broadly representative of the ways that U.S. nonprofits have supported HIV/AIDS work.

Two of the U.S.-based foundations, the Gates and Clinton Foundations, run their own programs. Most of the rest make grants to operating organizations, which may be local or international NGOs or research organizations. Foreign foundations, including those from the United States, have been the major source of funding for AIDS programs run by India's extraordinarily diverse and dynamic NGO sector.

Bill and Melinda Gates Foundation

The Bill and Melinda Gates Foundation has committed \$200 million over five years to its project in India, making it the largest single donor to India's program. Its *Avahan* program (Sanskrit for "call to action") has devoted most of its

resources to focused interventions in the six states with high HIV prevalence and along national highways. It aims to reduce HIV transmission among high-risk groups, especially sex workers, their clients, and injecting drug users, and to slow the spread of the epidemic into the general population. These interventions are supplemented by advocacy, public education, and capacity building.

The *Avahan* program is being developed and implemented in partnership with international NGOs, major businesses including state-owned trucking and fuel companies, the central and state governments, a few local NGOs, and affected communities. Unlike most foreign-funded projects, however, the Gates Foundation's funding is not channeled through the government's National AIDS Control Organization or the state AIDS Control Societies.

Broadly, *Avahan* supports activities in the following five areas:

- Focused HIV prevention among high-risk groups: interventions in the six states with high HIV prevalence and along national highways to reduce HIV transmission among high-risk groups (especially sex workers, their clients, and injecting drug users) and to slow the spread of the epidemic into the general population.
- Communications: capacity building and mass media efforts to promote behavior change among high-risk groups.
- Advocacy: initiatives aimed at galvanizing the leadership in India around HIV/AIDS in order to provide momentum and support for HIV prevention and care efforts, with a special emphasis on reducing stigma and discrimination.
- Capacity building: increasing the capacity of *Avahan* grantees and other organizations to execute *Avahan*'s strategies, with specific emphasis on management of sexually transmitted infections and structural interventions achieved through community mobilization.
- Monitoring and evaluation: program monitoring, surveillance, and long-term evaluation to determine the impact of *Avahan*'s efforts on the HIV/AIDS epidemic in India.

Avahan is working chiefly in prevention rather than care and treatment, and as a result its interventions are for the most part not medical (the principal exception being the network of clinics for sexually transmitted infections that it wants to develop and use as entry points for AIDS prevention). *Avahan* is working with companies and organizations with proven track records and scale. For instance, Indian Oil, one of India's biggest energy companies, has been tapped to allow promotional and intervention programs at approximately 4,000 truck stops and highway outlets run by the company. Similarly, the Gates Foundation is working with the Transport Corporation of India to spread HIV/AIDS awareness among the company's long-distance truckers. The project uses existing infrastructure and experienced NGOs to provide targeted programs in the high-risk states. This is akin to standard business practice where the market is segmented and solutions are tailored to meet specific demands. This similarity is not by chance: the director of the *Avahan* program and many of his staff come out of a business

background and concluded that the magnitude of India's problem required an approach with the kind of focus on strategic levers of change that is more typically found in business marketing plans. The other hallmark of the *Avahan* program is its focus on approaches that can be rapidly scaled up. The program managers are sensitive to the needs of local communities, but their primary focus has been on replicability.

The Gates Foundation has been deeply involved in funding HIV/AIDS work around the world, not just in India, and has worked hard to bring to bear on its India program the intellectual capital it has created around the world. This is apparent in the diversity of academic talent on its advisory board. Some of their other projects also have elements in India, notably the Heroes Project, led by actor Richard Gere (see below).

William J. Clinton Foundation

The William J. Clinton Foundation has partnered not with NGOs but with the National AIDS Control Organization (NACO) to provide primarily logistical, supply, management, and systems support for its care and treatment programs. The initiative, begun in September 2004, will help develop and implement monitoring and evaluation systems for the government's ARV program and help in the procurement of CD4 testing equipment. The Clinton Foundation has an established relationship with India's drug manufacturers and has bought drugs for a number of AIDS programs in Africa from them. In principle, it is prepared to fund procurement of antiretroviral drugs for the Indian government program, but as of this writing has not done so. It will also assist with training health professionals and provide support for community mobilization efforts to decrease stigma and discrimination surrounding AIDS. In May 2005, the foundation announced plans to set up a number of training institutes in collaboration with NACO to train private-sector doctors in HIV/AIDS prevention, care, and treatment. The project aims to train 150,000 private-sector doctors over the next year.

The Clinton Foundation is driven by the needs articulated by the government, and its ability to respond quickly is much prized, as is the fact that it explicitly aligns its priorities with those of the government program. In working with the government, it has tried to focus on helping to set up systems that will make the government's overall program function more effectively. This includes such issues as procurement processes, decisions on whether to rent or buy machines, and the deployment of the very expensive equipment for testing AIDS patients. The Clinton Foundation's principal university partner in the United States is Brown University.

Elizabeth Glaser Pediatric AIDS Foundation

The Elizabeth Glaser Pediatric AIDS Foundation is working in India through the public-private partnership Call to Action (CTA), which works to reduce mother-to-child transmission (MTCT) of the HIV virus. The foundation has five major

sites in India: Bangalore, Chennai, Hyderabad, Mysore, and Pune. In addition, the project is also funding work aimed at community mobilization, training health care workers, HIV counseling, and testing and education.

Ford, MacArthur, and Rockefeller Foundations

Several U.S. foundations, including the Ford, MacArthur, and Rockefeller Foundations, have supported some AIDS-related work as part of programs devoted to population or broader health issues. All three work through grants to Indian individuals or organizations. The MacArthur Foundation spent a decade working to broaden the population field from a narrow focus on family planning to a broad reproductive health and rights agenda. Since 2000, it has focused its grant making on two themes: (1) reduction of maternal mortality and morbidity; and (2) promotion of young people's sexual reproductive health and rights. Its work on sex education for young people continues to link with work on HIV/AIDS. Given that 85 percent of the HIV transmission in India is through sex, young people are particularly vulnerable to the infection.

These foundations have supported not only operating programs but also research and systems development. One Rockefeller-supported project, for instance, developed some very valuable insights into teenagers' sexual behavior.² The Rockefeller Foundation has had a particularly welcome emphasis in some of its grants in passing on "lessons learned." One of its grantees explained that her projects included explicit provision, and explicit funding, for identifying the aspects of her project that were good candidates for replication and training for prospective "daughter projects." Since many of the foundation-funded NGO projects are small and pride themselves on their ability to experiment and find new ways of responding to local needs in a huge country, this step, whether one refers to it as replication, adaptation, or scaling up, is essential if "retail" NGO projects are to have a collective impact on the national problem.³

Henry J. Kaiser Family Foundation

The Henry J. Kaiser Family Foundation is focusing much of its work on innovative public education models that leverage the vast resources of for-profit and not-for-profit media companies to provide information on prevention and stigma. The foundation is providing production and substantive support to the Heroes Project, a public education initiative in India launched by Richard Gere and Parmeshwar Godrej with financial support from the *Avahan* initiative of the Gates Foundation. The project works with the media to raise awareness about and ultimately reduce the stigma surrounding HIV/AIDS. The three-year campaign, which has received the support of the National AIDS Control Organization in India (NACO), includes targeted public service messages and special editorial,

² See Teresita C. Schaffer and Pramit Mitra, *India at the Crossroads: Confronting the HIV/AIDS Challenge* (Washington, D.C.: CSIS, January 2004), http://www.csis.org/saprog/0401_hivindia.pdf.

³ Conversations with Geeta Sodhi, Swaasthya, and with Poonam Muttreja, MacArthur Foundation, New Delhi, March 2005.

programming, and other free informational resources. In January 2005, the foundation worked with the Heroes Project to carry out the first Media Leaders Summit on HIV/AIDS to be held in India, which brought together top executives from the leading media organizations across the country at the prime minister's residence in New Delhi. Later in the spring, Kaiser worked with Heroes on an entertainment summit for the writers, producers, and executives of entertainment television to promote the integration of HIV-themes into popular programming.

Gere Foundation

The Gere Foundation, created by actor Richard Gere, has done valuable work in India not only through the Heroes Project, but through its support of the Naz Foundation, a small group that runs a home and treatment center for HIV-infected children in Delhi. Gere's principal aim is to mobilize leaders in Indian society to combat the AIDS pandemic. Gere has sponsored a number of high-profile celebrity events to raise money for this and other AIDS projects. His personal involvement has led to sharply increased interest on the part of the Indian film and arts communities.

Universities and Scientific Establishments

It is impossible to list all the projects related to HIV/AIDS conducted by American university and medical institutes. The programs summarized below give a good sense of the diversity of work being carried out by the major players in university AIDS research in India. (Please also see the appendix for a list of Internet links to additional information.) NIH has been a major source of funding for university work on AIDS in India, and the priorities and programs described in the section on NIH are therefore important elements in the work of the universities. This includes development and testing of vaccines and microbicides. The major players also have significant projects that are unrelated to NIH.

Yale Center for Interdisciplinary Research on AIDS

The Yale Center for Interdisciplinary Research on AIDS (CIRA) is one of the most active university institutes involved in HIV/AIDS work in India. Funded primarily by the National Institute of Mental Health (NIMH), the center has scientists from three institutions including Yale University, the Hispanic Health Council and the Institute for Community Research. At Yale, faculty from seven different schools participate in CIRA, including the Yale School of Management and Yale Law School.

CIRA's five active projects illustrate the breadth of its interdisciplinary interest. They include a study of existing academic literature, regional reports, case studies, and media reports from India relating to law enforcement structures, policies, and procedures that have an impact on HIV risk and prevention in the countries. CIRA researchers, working with local Indian scientists, are conducting phone or e-mail interviews with key constituents to develop a better understanding of how these factors act as barriers or facilitators to the spread of

the HIV/AIDS epidemic. Other projects include studying the social and cultural factors that make Indian women particularly vulnerable to HIV/AIDS infection; monitoring and evaluating the ARV treatment program in Tamil Nadu state; developing better quantitative and qualitative models for evaluating HIV/AIDS intervention programs; and a three-year project identifying and developing better intervention program among high-risk groups, such as commercial sex workers, in the six high-prevalence states.

Johns Hopkins University

The Johns Hopkins University has a long history of collaboration with Indian institutions for health work. It has conducted a number of health-related programs in India, including a 13-year, NIAID-sponsored collaboration with the National AIDS Research Institute and B.J. Medical College in Pune, which has undertaken a number of HIV clinical studies including female microbicide trials, a prevention of mother-to-infant transmission trial, and the first and most comprehensive studies of the risk factors for HIV transmission in India. The Pune research group is about to initiate the first antiretroviral drug trials in India. Hopkins has also provided training and infrastructure support, which has been instrumental in building the capacity for India to initiate its first HIV vaccine trial in March 2005. Hopkins also collaborates on an NIMH-sponsored HIV/STD Prevention Trial project in Chennai to study community-level behavior change interventions that are cost effective and feasible for implementation countries with limited resources like India.

Harvard School of Public Health

The Harvard School of Public Health (HSPH) is looking at gender-based violence and its linkages to HIV/AIDS in a number of countries, including India. The two-year project, entitled “Gender-based Violence and HIV/AIDS,”⁴ is funded by the Ford Foundation and brings together participants and organizations involved in gender-based violence (GBV) and HIV/AIDS work. Based on the outcome of this project, partner organizations will be asked to design intervention programs in their respective countries. In addition to this project, Harvard also trains Indian researchers and biomedical specialists through the Fogarty AIDS International Training and Research Program (AITRP). Other notable work includes a study of India’s private health care sector by Harvard researcher Peter Berman, entitled *Rethinking Health Care Systems*.⁵

Lifespan Brown/Tufts Center for AIDS Research

Lifespan Brown/Tufts Center for AIDS Research is a joint research venture of Tufts and Brown Universities. In Chennai, the center is working with YRG CARE, already mentioned several times for its work with NIH and CDC. The

⁴ See project description at <http://www.hsph.harvard.edu/xfbcenter/gbv.pdf>.

⁵ Peter Berman, *Rethinking Health Care Systems: Private Health Care Provision in India* (Boston, Mass.: HSPH mimeo, 1997).

extensive collaboration and exchanges have strengthened its already high-profile role in AIDS research in India. It has received a number of NIH grants and is involved in HPTN and AIDS Clinical Trials Group (ACTG). YRG CARE researchers have also authored a number of joint publications with the Tufts/Brown faculty.

Elsewhere, researchers from Lifespan Brown/Tufts Center are working with experts at the Christian Medical College (CMC) in Vellore, Tamil Nadu, to address intestinal functions issues associated with highly active antiretroviral therapy, or HAART. CMC has a stellar reputation for research in intestinal function and diarrheal diseases and researchers from both sides are tapping into this database of work to investigate the impact of ARV drugs on intestinal functions.

Carolina Population Center

The Carolina Population Center, based at the University of North Carolina at Chapel Hill, has two main projects related to HIV/AIDS in India. The first is looking at the potential for an HIV/AIDS pandemic in the northern populous state of Uttar Pradesh. Little is known about the disease in this state and the Carolina project is looking at the potential for the spread of HIV/AIDS in this state. The first phase of the project, which began in June 2001, was used to develop models to explain the combination of factors that place men in urban Uttar Pradesh at risk for engaging in sexual bridging behavior. The second phase of the four-year project is being used interpret the result and recommend policy guidelines. In addition, investigators from the university are also looking at the role of community peer-opinion leaders in reducing sexually transmitted diseases and HIV rates among slum communities in Chennai.

University of Washington at Seattle

The University of Washington at Seattle—in collaboration with the University of California at San Francisco (UCSF)—is working in Tambaram Hospital in Chennai to develop human resource capacities for the Global AIDS Program (GAP) field offices of CDC. The project called I-Tech is funded through a cooperative agreement with the Health Resources and Services Administration's HIV/AIDS Bureau. Researchers from the university are working with the government of Tamil Nadu and CDC staff to improve the quality of patient care and increase capacity for providing HIV/AIDS care and treatment in the state and collect baseline data in order to measure outcomes and impact. For this, the project is developing relevant curriculum and training hospital and nursing staff at Tambaram. UCSF is looking at alcohol-HIV linkages in cooperation with YRG Care, also in Chennai.

University of California at Los Angeles

The University of California at Los Angeles (UCLA) is working with All India Institute of Medical Sciences (AIIMS) in New Delhi to develop ways to

strengthen multidisciplinary research and training related to HIV/AIDS and tuberculosis at AIIMS. UCLA has trained a number of Indian scientists and researchers over the years through the UCLA/Fogarty AITRP program. This has led to several productive collaborations, including a two-year program training AIDS researchers in India led by John Fahey, a professor of microbiology, immunology, and molecular genetics at UCLA. The participants spend three months at UCLA designing research projects in consultation with faculty and then return to India to carry out their projects while remaining in close contact with their UCLA mentors, most notably Professor Roger Detels. Noteworthy achievements include the training of a scientist developing a vaccine against a strain of HIV common in India. The program has also forged a productive relationship with the Tuberculosis Research Center in Chennai. Other prominent universities involved in the training of Indian researchers and scientists under the CFAR umbrella include the New York University School of Medicine.

International AIDS Vaccine Initiative

The International AIDS Vaccine Initiative (IAVI), a global nonprofit organization working to accelerate research to develop a preventive AIDS vaccine, has pioneered a new model for international cooperation. Founded in 1996, IAVI sponsors partnerships with researchers in industrialized and developing countries to advance the study of promising AIDS vaccine candidates. IAVI also works to assure that an AIDS vaccine, once available, will be accessible to everyone without delay.

IAVI's partnerships are public-private ventures, involving academic and government research organizations as well as biotechnology and vaccine manufacturing companies. For each of the partnerships, IAVI provides financial backing as well as project management, technical assistance, and an international network of state-of-the-art laboratories and clinics. IAVI's major financial supporters include the Bill and Melinda Gates, Rockefeller, and Sloan Foundations; the World Bank; and government agencies in Canada, Denmark, Ireland, the Netherlands, Norway, Sweden, the United Kingdom, and the United States. It operates in 23 countries. In India, it has partnered with the Indian government through the Indian Council of Medical Research (ICMR) and the National AIDS Control Organization (NACO) under the Ministry of Health and Family Welfare. Kapil Sibal, Indian minister of science and technology, sits on the IAVI board, which includes nationals of close to a dozen countries drawn from business, the public sector, international organizations, national governments, and NGOs.

IAVI's most important current effort in India is the first-ever human clinical trial of an AIDS vaccine, which began in February 2005 at ICMR's National AIDS Research Institute in Pune. This is an integrated project with activities in a dozen or more countries, an approach that is typical of IAVI's operating style. The vaccine candidate, called "tgAAC09," was jointly developed by Targeted Genetics Corp., a Seattle-based biotechnology company, a researcher based at the Columbus Children's Research Institute (CCRI) in Ohio, and IAVI. This

candidate is meant to target HIV subtype C, which is the predominant strain (90 percent) of HIV in India. This Phase 1 trial, testing the safety of the vaccine at gradually escalating doses, is part of a multicenter trial being conducted in India, Germany, and Belgium. Assuming the trial is successful, IAVI hopes to start a study of two doses with the same candidate vaccine in South Africa. A second Phase I trial with the TBC-M4-based vaccine candidate, or the Modified Vaccinia Ankara (MVA), will be initiated at the Tuberculosis Research Centre, Chennai, in early 2005. For efficacy Phase III trials, India could eventually participate in multicountry trials with South Africa and Zambia. IAVI plans to conduct site and community epidemiological research and preparedness studies in India to evaluate the feasibility of conducting efficacy trials in the country and to identify, assess, and prepare potential clinical sites and communities.

The IAVI partnership with the Indian government has received strong endorsement from President A.P.J. Abdul Kalam of India, who is a scientist and has shown special interest in the vaccine development program. He has urged that several vaccine candidates be tested simultaneously in India to accelerate the process of finding an effective AIDS vaccine. The clinical trials are guided by the National Advisory Board (NAB), consisting of a distinguished group of Indian experts in ethics, medicine, and law; parliamentarians; academicians; media personnel; and leaders of community organizations. Other expert panels that have guided the program include the Gender Advisory Board, the Informed Consent Group, and the NGO Working Group. Based on the recommendations of a national consultation, IAVI will provide care, support, treatment, and if recommended, appropriate compensation to the trial participants for any adverse events or disabilities directly due to the trial vaccine. In the event that trial participants become infected with HIV due to their at risk behavior, IAVI will support access to care and treatment including antiretrovirals for a period of five years. Medical insurance for vaccine-unrelated events for the duration of the trial period will also be provided to the trial participants by the trial institution.

As part of its work in India, IAVI provides good opportunities for training for Indian scientists working with it. This program is helping to strengthen India's capacity for doing vaccine testing and also for expanding production facilities. IAVI's work in India has helped enhance research capacity in the country and elevate the trial sites to become global centers of excellence to evaluate AIDS vaccines.

Nonmedical Work

Apart from the interdisciplinary work being done as part of broad AIDS-related programs, other universities have people working outside the AIDS world on nonmedical issues that are highly pertinent to the fight against AIDS in India. Programs in health law (like the one at Georgia State University) and health economics (such as the one at Harvard University) are good examples. Their linkages in India are not as extensive as those that have some kind of medical connection, however.

Lawyers Collective

The Lawyers Collective is a group of lawyers in India that is deeply concerned about the problem of HIV/AIDS and has been working on the problems of stigma and discrimination. The collective has provided advocacy and litigation support for HIV-positive people affected by discrimination. Since May 2002, it has been working with a sympathetic group of Indian parliamentarians to draft an HIV/AIDS law. The draft legislation is designed to combat stigma and prevent discrimination and reflects extensive research on laws, policies, and practices on HIV/AIDS to make the legislation appropriate to the Indian context. Comments were also sought from people living with HIV and AIDS, health care providers, and “people on the ground.” These experiences have been consolidated in the form of a book, *Legislating an Epidemic: HIV/AIDS in India*.⁶ The legislation was scheduled to be introduced in the Indian parliament for voting by the end of April 2004, but the parliamentary elections last year and arrival of the new government has delayed the process. They now hope to get the legislation introduced in 2005. The government’s apparent interest in moving ahead with legislation drafted outside the government is highly unusual in the Indian system.

Organizations of HIV-positive People

India has a number of such organizations, which are remarkable groups, devoted to giving HIV-positive people a chance to live longer, healthier, and more satisfying lives. The head of the India HIV/AIDS Alliance, Anandi Yuveraj, sits on the board of the Global Fund to Fight AIDS, TB, and Malaria and has quickly earned a reputation for hard work and dynamic interventions in this high-powered international forum. The Network of Positive People supports prevention work and advocates greater outreach and medical research, but the heart of its work is combating stigma and discrimination. Its representatives speak at business and media meetings, presenting an attractive, focused, and energetic view of HIV-positive people. Foreign donors including USAID and HHS/CDC have worked with them in some of their community-oriented projects.

Business

Collaboration between U.S. and Indian corporate sectors has been the least-developed area of U.S.-India cooperation on HIV/AIDS. Relatively few U.S. corporations in India have workplace AIDS programs, and those with substantial labor or truck delivery networks have thus far been reluctant to associate themselves with the disease. Recently, however, the American Chamber of Commerce in India sponsored a session on AIDS as part of a conference on corporate social responsibility with the help of one of the local chambers of commerce, which is active in 10 North Indian states, and the U.S. embassy in New Delhi.

⁶ Lawyers Collective, *Legislating an Epidemic: HIV/AIDS in India* (Delhi: Universal Law Pub., 2003).

The Structure of India's AIDS Programs

India's AIDS programs are implemented through the National AIDS Control Organization (NACO), a semi-independent organization established in 1992 within the Health Ministry. Its special status was intended to streamline the government of India's decisionmaking and program implementation.

NACO is the principal contact with donor countries and organizations. It is a small organization, and is not designed to be an implementer of programs nation-wide. It coordinates both government and NGO programs. NACO has also produced analytical work supporting programs around the country and has sponsored the country's surveillance system. Most of the actual work of implementing programs is done at the state or municipal level through AIDS control societies.

The state AIDS control societies are funded by NACO but are also allowed to accept international donor funds and private funding. They are encouraged to partner with local NGOs, a practice that in some places has been very effective. For NGOs implementing programs on behalf the state societies, the budgetary pipeline runs from NACO to the state society to the organization itself. Both donors and NGOs have been frustrated by a relatively slow pace of spending.

This AIDS structure is separate from the public health system, which is primarily run by the states and which includes both clinics with a broad health mandate and a number of other vertical programs, such as family planning, malaria, and tuberculosis. The Indian government is trying to integrate these programs so as to make them more user friendly and reduce the damaging impact of internal competition for resources.

Much of India's medical care is provided outside the government sector. A World Bank study released in January 2004 said nearly 82 percent of all health spending in India is private. Private health care runs the gamut from small-scale traditional providers, to providers using Western or traditional systems of medicine, many of them without formal credentials, to highly trained physicians, to high-end specialized facilities like Apollo Escorts, Woodlands, and Max Healthcare hospital chains that have staff and equipment at global standards. According to Indian newspaper reports, an estimated 150,000 foreigners visit India every year for specialized medical treatment, mostly from South Asia and the Middle East. Some private hospitals and doctors treat patients with HIV/AIDS. In early 2004, AIDS officials estimated that some 15,000 patients were being treated with ARVs, most of them in private care. Others, not being subject to the rules that bind government employees and facilities, refuse to treat patients with HIV/AIDS.

The government has the lead role in medical research in India. At the apex of the system is the Indian Council of Medical Research, the parent organization for most of the country's major research facilities including the National AIDS Research Institute in Pune. The national government also runs several of the major research and teaching hospitals. While most medical schools are part of the government-run university system, some prominent ones are private, notably Christian Medical College in Vellore, Tamil Nadu.

India boasts a large number of talented and dedicated NGOs, many with substantial operations in different parts of the country. Most of those working in the AIDS field are funded from international sources, either through official aid programs or through independent foundations. This means that their funding applications require a government clearance. The principal exceptions to this are the Population Foundation and the Lawyers Collective, both of which are locally funded.

Indian pharmaceutical companies like Ranbaxy, Matrix Laboratories, Cipla, and Dr. Reddy's Laboratories have become important players in the global fight against AIDS. The Indian generic pharmaceutical industry caught world headlines when Yusuf Hamied, CEO of Cipla, offered to provide ARV drugs to badly affected countries in Africa for a fraction of the cost then being charged by the international pharmaceutical companies. The world's reaction transformed the market. Generic companies introduced fixed-dose combination (FDC) drugs, intended to simplify the process of providing drug therapy by creating formulations containing multiple medications in one pill. Pressure from the receiving countries led several of the multinational companies to agree to provide ARVs at a price that provides no profit, and the World Health Organization (WHO) also established a list of manufacturers and specific manufacturing facilities whose drugs, both individual and FDC, were "prequalified" for use in treating HIV/AIDS.

At this point, the Indian generic companies are a significant presence in the international market for ARVs. Four Indian manufacturers have products on the WHO's list. Cipla, Matrix Labs, Ranbaxy, and Hetero Drugs have agreed with the Clinton Foundation to provide drugs to four African and nine Caribbean HIV-hit countries at a per capita cost of about \$0.37 per day. Ranbaxy has a presence in 19 countries and manufactures in 7. Ranbaxy and Cipla manufacture in Nigeria. In many cases, these are countries where India's commercial presence is otherwise quite limited. At least one of these companies has submitted applications for FDA approval under the expedited review process that was initiated in January 2005; more filings are expected in the coming months. The Indian government has been purchasing drugs from these companies for its own program.

Global Business Coalition to Fight AIDS

The Global Business Coalition to Fight AIDS (GBC), which is trying to mobilize the business community's response to the HIV/AIDS pandemic worldwide, has eight members from India. These include Tata Industries, Bajaj Auto, Modicare, Premier Medical Corp., Ranbaxy, RPG Industries, RRR Industries, and SRF. In 2003, GBC, Booz Allen Hamilton, and the Confederation of Indian Industry (CII) released a report on HIV/AIDS projections in India, based on a simulation conducted in New Delhi involving about 200 participants from the government, the Indian business community, and NGOs. The simulation had concluded that with certain policy changes and cooperative actions by business and NGOs, the transmission of HIV could be dramatically slowed in India. There is widespread consensus that Indian companies need to get more engaged in the fight against the disease in order to make a difference.

Indian-American Initiatives

The Indian-American community's voluntary work in India is extensive, and spans the whole country, with many successful Indian-Americans looking for ways to contribute to the part of India from which they or their families

originated. The examples described here give a sample of the diversity of its work, both in India and on the U.S. political scene. Because of the high percentage of doctors in this community, the medical side has an especially high profile.

American Association of Physicians of Indian Origin

The American Association of Physicians of Indian Origin (AAPI) has what appears to be the largest and most broadly based involvement in AIDS work through its nonprofit health care system, SHARE MediCiti, in Andhra Pradesh. Comprising two hospitals, a medical school, and a nursing school near Hyderabad, the 10-year-old facility has trained health care professionals in the care of persons with HIV/AIDS. The nonprofit is also working with the Johns Hopkins University to help raise awareness about the spread of HIV in villages surrounding the medical complex. Elsewhere, it is involved in monitoring and evaluation activities in collaboration with faculties of various U.S. medical and public health institutions. MediCiti is not part of the programs of NACO or the Andhra Pradesh state AIDS society, although its tuberculosis program is supported by the state. AAPI officials are not averse to working with the government on AIDS, but they point to the complicated set of rules and regulations as the deterrent.

In addition, AAPI has several other programs in India and is advocating additional initiatives to support and complement the programs initiated by the government of India and other organizations in India. Over the years, AAPI has organized numerous workshops and formal training programs in India with faculty drawn from various American medical schools. Some of these programs cover issues related to HIV/AIDS.

One such initiative (CHART-India) is based at the University of South Florida (USF). The Colleges of Public Health and Medicine and the Division of Infectious Diseases and Tropical Medicine at USF, working collaboratively with various Indian organizations, have established educational programs at 39 sites in India for patient health care, staff training, and medical research.

CHART emphasizes service to rural and tribal populations in India, taking a collaborative approach to building the capacity of Indian providers to handle HIV and other major diseases. The project, started in 1999, has so far trained 67 Indian physicians through its HIV Medicine Intensive Training Course and has organized a number of conferences in India, in addition to giving presentations on India's HIV/AIDS pandemic at major international venues such as the World AIDS Conferences of 2002 and 2004. Fifty-eight Indian physicians have also been trained through fellowships and exchange programs at USF.

AAPI has also launched a program to address the risk of HIV infection among truckers, called the Comprehensive Risk/Reduction in India–Strategic Partnership or CRISP. In collaboration with MediCiti, local AIDS organizations like the Metro Foundation and Gati Ltd., CRISP has begun to provide health evaluations, HIV counseling, education, testing, and medical care. Located in rural Ranga

Reddy District near Hyderabad in Andhra Pradesh, MediCiti has been designated a center of excellence for HIV/AIDS work by the American Association of Physicians of Indian Origin and is the first CRISP center to begin outreach, education, research, and treatment services in India.

SAATHII

SAATHII (Solidarity and Action against the HIV Infection in India) is a nonprofit organization based in Chennai and Calcutta. A sister organization, SAATHII-USA, is registered as a nonprofit in the United States. The core of SAATHII's work is providing training and technical assistance for NGOs, particularly in program management, monitoring and evaluation, and technical skills such as prevention of mother-to-child transmission (PMTCT), and interventions among men who have sex with men (MSM). SAATHII's work with state governments has included assistance with the expansion of the antiretroviral therapy program to new sites in southern India and a Bengali-language media campaign focusing on HIV/AIDS prevention in eastern India.

In addition, SAATHII has been one of the leaders in information dissemination on HIV/AIDS in India via its popular mailing list and online resource center. It has compiled an impressive directory of nearly 1,150 implementing, policy, and funding agencies involved in AIDS work in India, available free of cost online. In the United States, SAATHII is also involved in outreach activities through various think tanks and foundations, mainly in New York, and in advocacy activities on Capitol Hill in Washington, D.C. SAATHII's work in India is carried out in collaboration with such NGOs as Rural Education and Action Development (READ) and the ABK-AOTS DOSOKAI Tamil Nadu Centre. The work is funded by the John M. Lloyd and Elton John AIDS Foundations, UNAIDS, Global Strategies for HIV Prevention, the Asian Media Communication and Information Centre in Singapore, Children's Investment Foundation Fund (CIFF, UK) and the Tamil Nadu and West Bengal State AIDS Control Societies, as well as private donations.

Indicorps

Indicorps is a relatively young organization (founded in 1997) that provides volunteer service opportunities for global Indians in India. These range from one- to two-year fellowships for young professionals, to short-term stays, to a planned future program aimed at retired professionals. This is an example of the kind of general-purpose Indian-American organizations that are interested in including focused and practical work on HIV/AIDS in a broader agenda for voluntary linkages.

American India Foundation

The American India Foundation, launched by a group of Indian-Americans who went to India with former U.S. president Clinton after the earthquake in Gujarat in April 2001, has done some work on AIDS as part of a broader focus on health

issues. In this respect, its approach is similar to that of some of the older foundations for whom AIDS is a subset of their work on health.

U.S. India Political Action Committee

In Washington, D.C., the U.S. India Political Action Committee (USINPAC), a bipartisan lobbying group that focuses on issues related to U.S.-India relations and on matters of concern to the Indian-American community, has been working with the Bush administration and members of Congress to mobilize financial support for India's fight against AIDS. The group has organized a number of conferences and briefings on Capitol Hill and has managed to engage lawmakers and raise awareness about India's aid requirements.

Multilateral

A number of other donors are working on HIV/AIDS. The multilateral organizations have been important contributors; the United States is a major contributor to all those listed here.

Global Fund to Fight AIDS, Tuberculosis, and Malaria

The Global Fund to Fight AIDS, Tuberculosis, and Malaria has made commitments to India totaling \$250 million for prevention, treatment, and voluntary testing and counseling in its first four rounds of grants, through June 2004. Each grant is in principle for five years, with a review after the first two years. The first grant, worth \$26 million over two years, focuses on combating mother-to-child transmission of the virus in the six high-prevalence states and has made significant progress. Another \$26-million two-year grant approved in June 2004 plans to reach 137,000 people with ARVs over the next five years and is divided between the Indian government (\$22 million) and various NGOs (\$4 million). The government will purchase and administer the medicines, while the NGO consortium will provide the care and support necessary to ensure adherence to the treatment regimen. The government grant is yet to be signed, but agreement with NGOs has been finalized and implementation has begun.

The Global Fund launched a fifth round of grants in March 2005 with results expected to be announced in September. There are indications that India will submit a proposal for another large HIV/AIDS program with strong linkages to the private sector. Disbursement of Global Fund resources in India has often been slow, but that has been improving. The United States provides one-third of the Global Fund's resources.

World Bank

The World Bank has supported two major projects that have been the backbone of international funding for the HIV/AIDS program in India. The second National HIV/AIDS Control project, approved in 1999, provided \$191 million in funding spread over five years to the Indian government to reduce the rate of growth of

HIV infection in India and to strengthen India's capacity to respond to HIV/AIDS. The project is divided into two components. The first calls for targeted intervention programs aimed at high-risk groups such as commercial sex workers, injecting drug users, migrant workers, men having sex with men, and STI (sexually transmitted infection) clinic attendees. It also supports effective mass media and communication campaigns to reduce stigma and discrimination and to promote voluntary testing and counseling services, blood safety support, and hospital and occupational safety programs. The second component finances institutional strengthening by enhancing planning, management, and implementation capacity at the national, state, and local levels. In addition, it also supports programs for leadership training, research and development work, broad social mobilization and cooperation, and information related to HIV/AIDS. The project has disbursed about 85 percent of its allocated funding at this time.

A third HIV/AIDS program is now under preparation. The Indian government has used it as an opportunity to bring all the major donors into the process of preparing a strategic plan for HIV/AIDS, in the expectation that this plan would not only guide the World Bank's next project but serve as the blueprint for bilateral donors as well.

UNAIDS

UNAIDS and its sister UN organizations (particularly UNICEF, UNDP, UNFPA, and UNESCO) are extending technical support for implementation of projects for the prevention and control of HIV/AIDS in India. The UN strategic plan for India, entitled "Towards an Extraordinary Response to HIV/AIDS in India," has the main goals of reducing the rate of growth of HIV infections and improving India's capacity to respond to the pandemic.

UNAIDS is providing technical support to NACO and state AIDS societies in the development of information, education, and communication materials. Key activities for UNAIDS in India for 2004–2005 include providing technical support for writing legislation against HIV/AIDS discrimination; training project heads of state AIDS control societies; strengthening NGOs working on AIDS; providing technical support to NACO for surveillance work; helping NACO with monitoring and evaluation activities; and helping state AIDS control societies to identify resource gaps and allocate resources.

WHO

WHO, along with UNAIDS and other organizations, is helping the Indian government with its antiretroviral therapy (ART) program. This is line with the WHO/UNAIDS initiative to provide 3 million people with ART by the end of 2005, also known as the "3 by 5 Initiative." WHO officials are providing technical assistance, training medical professional staff, and helping the Indian government in mobilizing resources for meeting its ART treatment targets. WHO is also deeply involved in other AIDS-related activities, such as monitoring

development of resistance to ART, improving public health infrastructure, and submission of proposals to the Global Fund.

Making the Most of India-U.S. Cooperation

India has attracted the attention of the international fight against the HIV/AIDS epidemic both because of the dimensions of its own epidemic and because of the unique assets it brings to the table. These include a large number of world-class scientists and institutions, a network of dedicated and creative nongovernmental organizations, and a web of relationships around the world both with foreigners and with an increasingly prosperous and prominent diaspora.

India's public health system is stressed and thinly staffed, but it has far more institutional strength and professional depth than most of the countries struggling with AIDS. India's democratic system of government makes public debate over sensitive issues like sexual behavior difficult. But in a more fundamental sense, India's democracy is an asset in this effort to bring the epidemic under control, because India has the experience of mobilizing its people and its political system to accomplish great goals, and democratic mobilization is central to a successful campaign against AIDS.

The United States, as is clear from the earlier parts of this report, has a number of very effective programs in India. Half a century of scientific cooperation has created a network of strong alumni. Coordination within the U.S. government is unusually strong. Nonetheless, the whole seems to be less than the sum of its parts. In this section of the report, we will examine what assets the United States brings to the table; which ones are underutilized; what special challenges face those who would collaborate on AIDS work in India; and finally, how the overall impact of India-U.S. cooperation could be increased and better aligned with India's emerging position in the world.

U.S. Assets

Expertise

The single greatest strength of Americans and American institutions working on HIV/AIDS-related issues is their expertise. The flagship institutions from the United States—CDC and the major research universities—command instant respect. This gives particular strength to the programs that create and sustain scientific and professional ties, such as NIH research grants and Fogarty International Center grants to American universities to create or strengthen research capability at counterpart Indian institutions.

The benefit of expertise runs in both directions. American scholars who work in India in the formative stages of their careers learn a great deal as well from their Indian counterparts and senior Indian scientists. This adds a dimension to their later work, whether clinical or scholarly, that they could not readily gain by staying within the confines of even the best U.S. institutions.

Continuity

The most successful collaborations are those that build relationships over an extended time. USAID's work on AIDS in Tamil Nadu and its long-standing involvement in family planning work in northern India have created institutional and personal relationships and an intimate familiarity with the development both of the AIDS problem and of the response to it in different parts of India. These are tremendous assets. Similarly, CDC and the Fogarty International Center, as well as its university grantees in the United States, have continued to work with the same counterparts for over a decade. In a different way, Indians who have studied or conducted research in the United States form a powerful "alumni association" that links the U.S. and Indian research networks, to the benefit of both countries.

Resources

U.S. funding is also prized. The U.S. government and private U.S. foundations are major foreign contributors to the HIV/AIDS fight in India. Besides its bilateral contributions to India, the U.S. government contributes one-third of the Global Fund and is a major contributor to the World Bank and WHO, both major donors to India's AIDS program.

However, the fact that such a high percentage of the resources for India's AIDS program come from foreign donors, including the United States, creates a complication. As India emerges as one of the important players on the world stage, it has worked hard to reposition itself as a country that is an aid donor as well as a recipient. Two cases in point are its substantial contribution to tsunami relief in January 2005 and its announcement of a grant to several African countries to assist in their AIDS programs.

On the private-sector side, India's transformation is even more evident. Indian companies are among the world leaders in information technology; one of India's pharmaceutical companies has manufacturing facilities in seven countries, including Nigeria and Vietnam. Several of India's drug manufacturers are supplying drugs to AIDS programs in Africa as well as at home.

As India moves into—or creates—a different world niche for itself, the working relationship that is typical between aid donors and aid recipients may need to be modified in order to maintain its full effectiveness. India's relations with developing countries, including HIV-affected countries in Africa, are also changing, reflecting its quest for energy resources and its more expansive role on global issues like HIV/AIDS. We will come back to this theme later.

Independent Foundations

U.S.-based foundations have been major sources of funding for research in India and other countries on subjects as diverse as the environment, international conflict resolution, rural health delivery, family planning, and now HIV/AIDS. At present, the Gates Foundation's annual contributions to its HIV/AIDS program in India exceed the bilateral contributions of the U.S. government. Some of the best-known foundations have opted not to get into HIV/AIDS work as such, but the

work they have done on subjects like reproductive health has contributed greatly to our understanding of the social and behavioral dynamics of the epidemic. Their independent status has permitted them to support work that might not fit U.S. policy priorities of the day, and this flexibility can be especially valuable when dealing with the sensitive issues AIDS brings up. These foundations have been an important source of funding for India's extraordinarily talented NGO sector, which is described in the earlier part of this paper.

Interdisciplinary Research

Despite the compartmentalization that many U.S. academics complain of, there is a strong orientation to interdisciplinary work among the academics working in India on HIV/AIDS and related issues. Even research grants from medical institutions, such as NIH, frequently include funding for operational or behavioral research, and the pattern among the major academic institutions dealing with international AIDS issues is to press hard for an interdisciplinary approach. This is essential to the study of a disease that is so closely tied in with people's intimate behavior and that is driven by the social and economic pressures on a society. But it has proved to be a difficult bridge to create in the Indian context, where most of the research institutions involved have a particular disciplinary identity and have difficulty operating across disciplinary or institutional lines. Thus the U.S. tradition of combined medical and social science work is particularly useful.

The Indian-American Connection

The 2-million-strong Indian-American community is prosperous, highly skilled, and its members are very interested in bringing their talents back to the country from which they or their parents emigrated. Indian-Americans are especially strongly represented in the medical community and will be for at least another generation. According to AAPI figures, Indians or students of Indian origin comprise approximately 12 percent of medical students in the United States, vastly exceeding their percentage of the population at large. Thus the medical community is likely to remain the leader in Indian-American work on HIV/AIDS in India. AAPI and other Indian-American groups have extended the reach of cooperation with the United States well beyond the point it could have attained otherwise.

Underutilized Assets

Private Medical Sector

Because of the large share of the medical "marketplace" served by private providers, one cannot really talk about national health programs without factoring in the private sector. At present, this is done in a haphazard way. Some private institutions have well-established links with U.S. and other foreign experts (good

How Much Funding Does the Program Need?

How much would it cost to treat all of India's AIDS patients and mount a prevention program that could turn the epidemic around? There are several possible benchmarks:

SAATHII estimates that the cost of drugs to provide first-line medication for those who need it now would be \$100 million per year, without counting the cost of administering the treatment programs.

Another estimate for the annual cost of treating the 100,000 patients the government's current program aims to reach with ARV medications is \$266 million. This estimate assumes that drugs will be available at the prices negotiated by African countries with the Clinton Foundation; it also includes the other costs of a treatment program.

A third estimate given by the Gates Foundation holds that a fully funded program of prevention, care, and treatment in India could cost over \$1 billion per year.

To the extent that patients need second-line medications, this figure will go up; each successive tier of medications costs about five times as much as the previous tier.

Based on World Bank and Thai government figures, Uganda and Thailand, the countries that have had the greatest success in reversing the trend of their epidemics, respectively spend \$0.55 and \$1.85 per capita on HIV/AIDS. NACO figures indicate that India in 2004 spent \$0.29 per capita.

According to official figures, India has about 13 percent of the world's estimated total of HIV-positive people, but only 3 percent of international HIV/AIDS funding.

The NACO budget is \$122 million for FY 2005–2006. Close to half of this figure represents unspent donor funds from previous years, which are being made available thanks to a change in Indian budget procedures but which are not necessarily part of the baseline for future budgets.

Much of the funding from the NACO budget is intended to be spent on vitally important prevention activities.

The table on the next page lists the major commitments by international donors. Some of these funds are also included in the government's budget figures, while others flow directly to NGOs and state AIDS control societies outside the budget process. Most of the larger programs, such as those of the World Bank, DFID, and the Global Fund, have found implementation slow. And even if funds are spent promptly, today's figures fall well short of what will be needed to sustain the government's treatment programs or to turn the epidemic around.

examples include YRG Care, Christian Medical College, Vellore, and MediCiti in Hyderabad); others do not. In general, however, the private medical sector is underrepresented in AIDS work and in foreign cooperation. This reflects the dominant role of the state in India's economic and social institutions during the first few decades of India's independence. It also relates to the government's sensitivity about maintaining control of foreign-source funding. But it represents a resource that needs to be brought more fully into the picture. The announcement on May 26, 2005, that the Clinton Foundation, in partnership with NACO, will be helping to train 150,000 private medical practitioners for work on AIDS could be

a real breakthrough, since it involves a significant number of people and it represents a cooperative undertaking by the private sector and the government.

Major External Funding Sources for HIV/AIDS in India

(in U.S.\$ millions)

Agency	Period	Amount
World Bank	1999–2005	191.00
USAID	2004–2005	36.00
CIDA (Canada)	1999–2005	8.20
DFID (UK)	2001–2006	175.00
CIDA (Canada)	1999–2005	8.20
Gates Foundation	2003–2007	200.00
Global Fund	through June 2004	250.00
UNAIDS	2002–2003	0.91

Note: Global Fund amount reflects commitments in its first four rounds of grants. The figures for UNAIDS, DFID, and CIDA came from UNAIDS. We have given the figures as they are provided by the donors, rather than dividing them by the number of years to get a yearly amount.

Business

The best example of Indian business leadership in HIV/AIDS work is the critical role played by Ratan Tata, chairman of the Tata conglomerate, in developing and implementing a set of standards, under the auspices of the Confederation of Indian Industry. The Tata Iron and Steel Company has been a national leader as well in establishing workplace programs that reach out into the larger community. And Indian pharmaceutical companies, as discussed earlier, have already changed the market for ARV medications and are poised for an even more significant role. In general, however, the business response to the epidemic has been modest, and the U.S. business community has had relatively little interest in an active role.

HIV-positive People

India's networks of HIV-positive people, as described above, are remarkable. A representative of the India HIV/AIDS Alliance sits on the Global Fund board. The Indian Network for Positive People (INP+) has done some work with USAID and CDC. Other networks, including some focused on women, have worked with NGOs that are major contractors for USAID's HIV work in India. There is an opportunity to do much more and especially to develop stronger contacts with counterpart groups in the United States.

Challenges

Integration

The Indian government is struggling today with the issue of how to integrate a series of disease-specific programs into a "national health mission." The

government's views are driven by two principal arguments: the waste represented by duplicative staffing in rural areas; and concern that dividing India's health resources into watertight compartments puts India at risk of ignoring its most important health priorities.

The challenge this represents for the HIV/AIDS program is broader than the classic debate between the "verticalists" and the "integrators." In the end, both integration and specific disease-prevention efforts need to be strengthened. Much of AIDS-prevention work is not medical. There is broad recognition, at NACO and elsewhere, that basic AIDS-prevention messages need to be "integrated" much more broadly, not just into the public health system but into education, public communications, the legal system, and many other aspects of everyday life. And integration needs to go beyond the government, especially in light of the important role of private health care. Several of the donor countries and organizations concerned with AIDS have been working on "mainstreaming" proposals that bring government agencies, businesses, and NGOs together in developing and delivering prevention messages.

Scale

The problem of scale is ever present in India. The government's decision to keep NACO as a small coordinating organization was a wise one, but even the states are large-scale compared with many other countries. The challenge, both for India and for others who wish to contribute to India's efforts, is to replicate and adapt successful approaches, while remaining sensitive to the needs to India's many micro-communities.

Most of India's AIDS-prevention work has focused on sex workers and truckers. The Gates Foundation added to the core concept of targeting these populations the critical innovation of segmenting the market and a relentless focus on measuring results. A number of organizations, both government and private, have developed good techniques for passing on the lessons of their own experience. The most successful operators have adapted their operating model to the very different traditions that exist in different parts of the country—and sometimes even in adjoining districts—on such issues as sex work.

For other high-risk populations, such as intravenous drug users and gay men, coverage is much sketchier. Finding and passing on models that work with these groups is urgently needed. And for populations not currently labeled "high risk," such as the stay-at-home families of migrant workers, there are few models or resources available. As the ARV program spreads, defining and passing on successful models will be essential. And with time, it will be important to adapt even the most successful models, because AIDS prevention depends on communicating messages that will get stale if they are not rejuvenated.

The organizations involved in AIDS work in India, both private and governmental, vary greatly in their ability to define and pass on the lessons of experience, and donors also vary greatly in their willingness to provide funding

for replication efforts. This should be an integral part of any substantial AIDS program.

Surveillance

India's surveillance system follows accepted international practice. The Indian government's figures tell us the most important facts about India's epidemic: that it involves over 5 million people in widely separated and quite different parts of that immense country. The issue with surveillance is not so much the quest for a more perfect set of aggregates, but the difficulty of getting enough geographical and epidemiological detail to permit program managers to deploy their resources effectively and to assess program results with confidence. This problem is inevitable in a country the size of India, even if one focuses on the state level. India has 10 states with populations above 50 million, any one of which is larger than all but a handful of countries in the world. Making better and more fine-grained data available will be a constant challenge and one that both India and its international partners should focus on.

User-friendliness of Government Procedures

Indian, U.S., and other foreign official procedures are all complex and difficult to reconcile with the need for speed and flexibility in responding to the epidemic. The U.S. and Indian governments both need to work hard to make their procedures less complicated.

- India's governmental procedures, at both the central and the state level, have been the object of complaints for decades. Bureaucratic processes are slow and ponderous. Until recently, the government's administration of its budget caps, put in place in order to maintain fiscal discipline, had the perverse effect of preventing the government from spending AIDS program funds that donors had already committed. The complicated web of permissions required for organizations to receive money from abroad are another frequent source of complaints. One major Indian-American organization commented that it had "given up" on working with the government because of the procedural complexity it required.
- On the other hand, foreign aid recipients in India and elsewhere have similarly been frustrated by the difficulty of satisfying aid donors' demands for data to evaluate projects and for monitoring and evaluation. USAID, being a relatively large aid donor, is often looked on as one of the more complicated to deal with. In the case of HIV/AIDS work, the donors themselves are acutely conscious of the problem faced by recipient governments who need to answer to 10 or 12 donors at a time. The major donors have agreed in principle to streamline their process through the "Three Ones," a commitment to respect one national authority and one strategic framework in each recipient country and to use one monitoring and evaluation framework. At the same time, the monitoring and evaluation demands being placed on recipients of U.S. assistance to fight

HIV/AIDS are unusually high, in light of the intense interest in the U.S. Congress in vetting both the effectiveness of that aid and its allocation to certain activities. A recent study on measuring HIV/AIDS prevention illustrates the problem. The list of criteria that the key donors will use in assessing their prevention projects also illustrates the distance that remains before real standardization is achieved. In a mechanical sense, this problem is less acute for India than for smaller, less-sophisticated governments. On the other hand, as India becomes a bigger player on the global scene, its policymakers are understandably sensitive about the appearance of having their priorities set by donors.⁷

Public-private Partnership

In comparison with the United States, Indian academic institutions and think tanks are more likely to have a close relationship with the government and to be more dependent on government funding. While NACO, the central government's principal agency responsible for AIDS, is a small organization and plays mainly a coordinating role, it is heir to a long Indian tradition that gives primacy to the central government in many areas of Indian life. Thus NACO has been the lead participant in India's Country Coordinating Mechanism for the Global Fund, and in almost every case, foreign funding even for private organizations has been channeled through NACO. (The principal exceptions to this are the Gates Foundation's program and AAPI.)

The partnership among government, donors, and NGOs has been an important one, and quite uneven. NGOs cover a huge range in size, ambition, capacity, and especially ability to translate successful ideas into replicable or adaptable models. There is a place for small "boutique" NGOs in this program. Historically, they have had better access to high-risk, stigmatized populations. They may also put the spotlight on emerging issues before the government or larger organizations become aware of them. But NGOs and those who fund them need to look at training capacity as an integral part of their work.

Private organizations seeking a constructive role in India's campaign against AIDS thus need to walk a fine line, coordinating with government authorities at both the central and state level without being boxed in. To create partnerships that extend into the business world, NGOs need to cross a second "cultural boundary," and many of them are deeply skeptical about the value and feasibility of finding common ground with for-profit businesses. It is worth trying, however.

The HIV campaign has already generated some novel organizational arrangements. One example is IAVI, described in the previous section of this report, which includes a wide range of participants from different countries and different parts of the economic spectrum. This suggests that it may be possible to define new vehicles for partnership.

⁷ Jennifer Kates and Phillip Nieburg, *Prevention Indicators for the President's Emergency Plan for AIDS Relief* (Washington, D.C.: CSIS, May 2005), <http://www.csis.org/hiv/aids/preventionindicators.pdf>.

Capacity Building

It is universally acknowledged that an effective response to HIV/AIDS requires capacity building, even in a country with the talent that India enjoys. There are several distinct types of capacity involved. This is an area in which American institutions can be particularly helpful, provided they are able to establish the kind of partnership Indians are looking for.

- *Managerial and logistical.* Both the AIDS-prevention effort, much of which takes place outside the medical system, and the public health system need more people who can run large programs, do manpower analysis, set priorities, and move people and supplies around the country. Outside the government, the NGOs that do operational work similarly need to build up their managerial and logistical capabilities.
- *Medical and paramedical.* India needs to train more doctors in the care of patients with HIV and AIDS. But, like most other countries in the developing world, it cannot realistically expect to field enough doctors to put all care and treatment into the hands of doctors. It will have to develop the trained nursing and other paramedical personnel to pick up a substantial chunk of the work involved in care and treatment.
- *Systems.* Beyond training more and stronger managers is the question of how they are organized. The public health system needs to integrate specific disease prevention with more general health care. Logistical systems and supply chains are central to both the prevention and care-treatment systems. The Clinton Foundation has been giving particular attention to this issue. In India as in the United States, the systems in normal use in the government are ill suited to a rapid buildup of capacity or a quick response to crises. Because of the major role of government in India, its government may face a particular challenge in adapting its normal processes to the needs of this campaign.

Recommendations

Our recommendations start from the premise that India and the United States, in working together to combat a scourge that threatens to sap the economic and social vitality of much of the world, both bring substantial strengths to the task. Their bilateral relationship is at an all-time high, strengthened not only by the end of the Cold War but by a growing convergence in their national security interests. Two decades of economic growth have begun to transform India, and a decade of increased attention to its neighbors in Southeast and East Asia has also changed its role in the world. India's response to the tsunami disaster of December 2004 made clear that India is capable of mounting a rapid and sustained relief effort, using significant military assets. India's current efforts to lay the groundwork for winning a permanent seat on the United Nations Security Council seem like the natural outgrowth of all these changes.

Indo-U.S. cooperation on HIV/AIDS needs to respect and strengthen the new bilateral relationship that is taking shape. It should reflect the international position that India has achieved and the greater changes that India is seeking in the coming years. Our recommendations focus on the context and operating style for Indo-U.S. cooperation, as well as on specific assets that we believe could be better utilized.

The first three recommendations have to do with the overall shape, style, and context for Indo-U.S. cooperation.

1. The United States and India should weave into all their cooperation on AIDS two key ideas: joint pursuit of scientific excellence, and joint commitment to strengthen international public health. These should also be high-profile aspects of the new Indo-U.S. relationship, going beyond the HIV/AIDS field.

Both are areas where the two countries independently have a great deal to offer and can collaborate as equals. They are, as a result, ideal illustrations of the kind of independent partnership that the two countries talk about creating in their political, security, and economic relationship.

Scientific excellence is probably the most important asset that the United States brings to the table in its work with India on HIV/AIDS. It runs through not only government cooperation but much private scientific and foundation work as well. India's scientists are able to make a world-class contribution, and intensifying their partnerships with U.S. counterparts can only strengthen both.

Strengthening public health, in India and internationally, is the context within which India's response to the epidemic will be shaped—and also the context for its contributions to fighting the international epidemic. Public health management in India is not at the same high level as its scientific research, but India boasts some of the most impressive talent in the world. Officials responsible for India's public health system are frank in calling for more support for the system as a whole and in recognizing that much of what the system needs to do is not strictly speaking medical. Indian and foreign observers agree that strengthening the public health system as a whole is one of the most powerful ways of invigorating the response to the HIV/AIDS epidemic. This means not just strengthening the management and responsiveness of the system, but strengthening its ability to prevent the specific diseases, including HIV/AIDS, that pose the greatest threat to India's future well-being.

These two themes should become regular leitmotifs of meetings between the senior political leaders of India and the United States. They should also leaven the scientific and professional ties that take place outside government channels. The strong position Indians and Indian-Americans have in the U.S. health sector makes this a natural channel for cooperation. Prime Minister Manmohan Singh, a distinguished economist, was a member of the Commission on Macroeconomics and Health before he assumed his present office, and he knows better than most

the importance of both these subjects. As he and President Bush prepare to exchange visits, the two governments should create opportunities to showcase and expand collaboration between Indians and Americans on major international health issues.

Two initiatives in particular would be good candidates for the two leaders to launch or advance. One is the proposal to create new Institutes of Public Health in India, described at the end of this section. The other would be a program for collaborative work in training the medical and other professionals needed to fight AIDS around the world, with medical and public health schools in India and the United States working in partnership.

2. The U.S. government, in its work on HIV/AIDS and more broadly on public health, should approach India not just as the recipient of resources, but also as a major contributor to the global fight against AIDS.

As India's economy expands and its political role grows, the hierarchical structure of traditional aid relationships has grown more uncomfortable for Indian leaders and officials. The U.S. government needs to craft a new model for its cooperation with India, one that deals appropriately with India's size and international role.

The presence of the Indian minister of health and family welfare and an Indian NGO representative on the Governing Board of the Global Fund provides an opportunity to strengthen the kind of collaborative relationship that would serve us well. The fact that this board includes representatives of governments, NGOs and businesses makes it an especially useful model for the kinds of broad partnerships needed for an effective fight against the epidemic.

Examples of the changed operating style we recommend include:

- Creating more opportunities for high-level consultations between Indian officials and those of the United States and other industrialized countries on global health issues, including HIV/AIDS. The expected presence of Prime Minister Manmohan Singh at the 2005 G-8 meeting in Gleneagles, Scotland, is a good beginning.
- Taking advantage of India's extremely open planning process for the proposed third World Bank HIV/AIDS project to base U.S. aid on a planning document that comes out of the Indian government and will apply to other donors as well.
- Simplifying the reporting requirements for U.S.-supported projects and, where possible, embedding them in reports that are formally presented to the Indian government rather than special reports for the U.S. government. This goes beyond the "Three Ones" that are supposed to guide international donors to HIV/AIDS programs.

3. Expand the resources available to HIV/AIDS work in India.

Considering India's size and the number of infected people in the country, the investment in health and in combating HIV/AIDS in India is still modest. The government's plans to expand preventive work will require a substantial increase in funding. The requirements for treatment are even more inexorable: patients now receiving treatment will require it for many years, and the number will only go up.

Addressing this will require an increase in Indian domestic funding for HIV/AIDS work, but it should also receive increased international funding. Now that the government of India has amended the budget cap that had restricted its ability to spend donor funds on a timely basis, the U.S. government should be working toward a steeper increase in funding for HIV/AIDS projects. The United States should also be focusing on the public health system as a whole and on strengthening the national surveillance system, as recommended in one of our previous reports.⁸ There is now some evidence that Tamil Nadu, which has the largest number of infected people and has also received much of the country's AIDS-fighting funds, is beginning to see a decline in the prevalence of HIV/AIDS. This suggests that we may be at a moment when additional funding can have real strategic impact, especially in those states where governance is good and the program is energetic.

The United States has not made India a "focus country" under the President's Emergency Plan for AIDS Relief but considers it a "country of interest." The administration has made clear that HIV/AIDS is a priority in its work in India. Moreover, the administration appears to be applying to all the countries where it maintains significant AIDS programs the same metrics for measuring their results, regardless of whether they are "focus countries" or not.

The most obvious path to expanded resources would be to name India a PEPFAR "focus country." On the other hand, "focus countries" have to deal with specific program earmarks and other legislative requirements for PEPFAR, and as the program expands, it risks becoming less flexible. The kind of relationship that works best between the United States and India is more collegial and less Washington-centric than the classic PEPFAR model. The key question for the administration is how it can best meet the goals of stepped-up resources, effectively harnessed through a long-term India-U.S. partnership. India's PEPFAR status should be seen as a means to this end.

Our other recommendations address project-specific issues that we believe will enhance the effectiveness and focus of Indo-U.S. cooperation.

⁸ Pramit Mitra and Teresita C. Schaffer, *Strategy for the Second Wave: Learning from India's Experience with HIV/AIDS* (Washington, D.C.: CSIS, November 2004), http://www.csis.org/saprogram/0411_aids_india.pdf.

4. Create long-term partnerships of equals.

All foreigners who are working on HIV/AIDS issues in cooperation with Indians, whether on a private or governmental basis, stress the vital importance of working in genuine partnership with their Indian counterparts—and of being seen to do so. Indian-Americans, both those representing Indian-American organizations and those working for other Indian or American institutions, observe that they are looked on as outsiders, at least when they first arrive in India. As with other foreigners, they feel they need to earn the right to be considered full partners. This is the most fundamental prerequisite for effective work in India.

Partnership starts with a professional relationship of mutual respect. It is developed over years; hence the importance of continuing, long-term collaboration. It is dynamic: what starts out as a mentoring relationship may naturally evolve, with the “student” becoming an independent scholar and eventually an expert with much to teach others, including his or her former mentors. As U.S. and Indian institutions work together, they should expect to see this transformation of their roles and seek opportunities to take advantage of it.

Building a solid partnership goes beyond the operating style of the scientists and program organizers involved. The standard procedures of organizations that are largely aid givers and accustomed to setting their own policy and priorities are not always easily reconciled with Indian expectations that they will be in the driver's seat in shaping programs in India, as was discussed above. India's size (and the consequent complexity of foreign involvement in its health and economic development sectors), the standing of its own scientists, and its status as one of the world's emerging powers all make this a particularly important issue in India.

5. Work across disciplinary boundaries.

Much of U.S.-Indian cooperation on AIDS has a strong multidisciplinary bias already. Similarly, the U.S. government agencies involved in AIDS work in India are already in close communication with one another. This orientation needs if anything to be strengthened. Being outsiders gives U.S. experts and institutions working with Indians an advantage when it comes to working across traditional boundaries, and they should take full advantage of it. Including components in medical research that test the social acceptability or operational effectiveness of their new discoveries can only strengthen the medical results and vice versa.

One vehicle that could really serve to encourage cross-disciplinary work would be for India to set up—with or without specific support from the United States—a system of competitively awarded research grants that would specifically encourage interdisciplinary approaches to major health programs. This could benefit not just HIV/AIDS work but also the government's efforts to make the totality of its public health programs responsive to national needs. Devising effective programs is not just a question of finding the optimum dosage or the most effective medicines. It also involves establishing services in ways that actually fit into people's lives. (To take one example: an otherwise excellent

program of voluntary testing and counseling in Andhra Pradesh had a surprisingly high percentage of people who never got their test results; apparently, one factor was that the test results were delivered after most of the inter-urban buses left the hospital site. Some time spent researching the social acceptability of hospital office hours could have made a real difference there.) But the people who can identify the right questions and try to answer them may not be medical researchers.

6. Engage the U.S. business community.

U.S. companies in India have so far shied away from associating with the AIDS pandemic. India's complicated social norms, fear of political backlash, concerns about the size of the epidemic, and lack of prior experience in dealing with the disease have all played their part. There is, however, tremendous opportunity for them to take a leadership role. Companies like Coca Cola and PepsiCo employ hundreds of workers indirectly and rely on the trucking industry to do business. Coca Cola has already established strong workplace and community programs in several African countries.

7. Create partnerships with India's private medical sector.

Though it provides the bulk of India's medical care, the private medical sector is highly fragmented. Engaging this group as a whole is almost impossible, but it needs to be brought into the HIV/AIDS campaign. The Indian-American community may be especially well placed to build partnerships with the private Indian medical sector.

Two recent examples of partnership with the private medical sector suggest models that other organizations should study and emulate. One is the Clinton Foundation's decision to work with the government to provide training to 150,000 doctors. A second is the AAPI partnership with MediCiti in Hyderabad, where they are able to link up not just with a hospital and chain of clinics but also with a nursing school and, hence, strengthen the AIDS skills of the younger professionals entering the field. Other private assets that could be better mobilized for HIV/AIDS work include laboratory facilities and the high-quality hospital chains, such as Apollo, with hospitals in four major Indian cities. Its founder, Prathap Reddy, hails from Andhra Pradesh, and Apollo is apparently exploring the possibility of working with CDC in doing humanitarian work in his home state.

8. Do not rush into creating binational committees.

The United States and India have established many binational committees over the years, including a Joint Commission on Economic, Scientific, and Cultural affairs, subcommissions covering each of the named areas, and narrower committees on specific topics. A committee on HIV/AIDS met only once, owing in part to high turnover in both governments.

Such committees can be useful ways of galvanizing work, especially government work, but more often they produce a good meeting with little follow-up. Consequently, if any new committee structures are established, they should:

- Be driven by a strong commitment from their prospective chairs as well as the working-level officials that support them;
- Include experts from outside the government for at least half their membership; and
- Draw on strong and established professional linkages.

9. Embed U.S.-India cooperation in an institution: Institutes of Public Health.

Perhaps the most powerful way to have a long-term impact on policy and behavior is to embed it in an institution. During the 1950s and 1960s, the United States was invited by the government of India to be the lead donor in creating the Indian Institute of Technology (IIT) in Kanpur, one of a network of institutes that still stand out as jewels in the Indian educational system. The American connection at Kanpur continued for decades, with American professors returning to a place they had grown attached to and with a network of Indian students who also studied in the United States.

The government of India is currently considering a proposal to develop Institutes of Public Health in India. We recommend that this proposal be given full support by the U.S. government and by foundations, universities, and Indian-American groups in the United States and that the institutes take on, as part of their broader public health mission, the goal of galvanizing the interdisciplinary research, capacity building, and national and international networking that can transform the fight against AIDS both in India and in other affected countries.

The proposal was developed through interactions among various Indian and international stakeholders, including state and central government health authorities in India, academicians from renowned international public health institutions including the Association of Schools of Public Health in the United States, multilateral agencies including WHO and the World Bank, civil society groups, and the U.S. Department of Health and Human Services. Several of these groups met in a “National Consultation on Public Health in India” in New Delhi on September 17–19, 2004, to discuss various approaches to developing world-class institutes appropriate for the needs of India.

The proposal developed from this consultation supports the establishment of a Public Health Foundation to (1) create public health education institutes and strengthen existing ones, (2) establish public health education standards and an independent accreditation system, and (3) serve as a think tank for the government of India and other stakeholders. The foundation would develop strong partnerships locally and internationally. The flagship initiative of the foundation would be to establish two new world-class schools of public health in the next few years.

The importance of autonomy, and how to achieve it. The proposal under consideration in India provides for an autonomous governance model. We believe this is absolutely essential. Most Indian universities and research organizations still rely mainly on government grants and have made little or no attempt to attract private funding. Two better models, which already enjoy a stellar reputation within India and around the world, are the Indian Institutes of Technology (IIT) and the Indian Institutes of Management (IIM).

India's seven IITs, most of them founded during India's first 15 years of independence, rapidly became the country's standard setters in scientific and technological education. They set their own admissions standards and their own curriculum. Their directors and faculty run the institution. Above them sits a board of governors headed by the president of India and comprising senior figures from the central and state governments, as well as distinguished scientists and leaders of industry (mainly from state-owned industry). They have been free to seek out private research grants.⁹

The Indian Institutes of Management (IIM) have taken the IIT model one step further. Their board of governors is headed by a major industrial CEO, and about half its members are from private industry, many of them successful alumni. Like the IITs, the IIMs attract top-notch students and are internationally known as top-flight institutions. Apart from a bitter tussle with the education minister of the previous Bharatiya Janata Party-led government over admissions fees last year, the IIMs have been allowed to decide their academic priorities and admissions policies. Noninterference with the academic agenda has been credited with attracting and retaining qualified faculty at the IIM campuses.¹⁰

The IIMs have had substantial private industrial involvement in their governance in part because of the expectation that many of their graduates would go on to careers in private industry. This structure would need to be modified somewhat for an institution in a field like public health, many of whose graduates might wind up working in the central or state governments. The board of governors of these Institutes of Public Health should include the major figures responsible for public health at the central and state government levels as well as people with distinguished records in medicine, public health administration, and the management of public health-related programs. But it should leave room for people whose expertise lies in development, social science, and perhaps business as well. And most importantly, it should help preserve the autonomy of the institution in setting curriculum and standards.

One way to preserve the autonomy of the Institutes of Public Health would be for them to have an independent funding source for part of their continuing financial needs. The government of India and the state governments in the places where the institutes were located would presumably be a major funding source, but there might also be funding from foundations and philanthropic groups both

⁹ See <http://www.iitm.ac.in/administration/>.

¹⁰ See <http://www.iimahd.ernet.in/>; <http://www.iimb.ernet.in/html/m-frames.jsp?ilink=83&pname=doctoral-specialisations.htm>; and <http://www.iiml.ac.in/institute/bog.html>.

inside India and elsewhere and from businesses. Support from the U.S. government, ideally in the form of a capital grant, would send a strong message of the kind of collaboration the United States wants to establish.

A flagship for U.S.-India cooperation on health. For institutions of this sort to become standard bearers, both within India and in the field of U.S.-India cooperation, they should:

- Become recognized centers of excellence, both within India and internationally.
- Have a strong ongoing relationship with international counterparts. In the United States, the Association of Schools of Public Health has already been involved in discussions in India on this subject. In addition, the new institutes and their key departments will want to maintain relationships with specific faculty and schools, and these ties might facilitate a more intimate and dynamic exchange of people.
- Develop a curriculum that places significant emphasis on management, systems, and the core public health skills—epidemiology, biostatistics, environmental health, and behavioral science. The management emphasis is especially important because of the challenge India faces in running a public health system for a country of over 1 billion people. Equally important is the notion that these would not be “junior grade medical schools” but first-rate institutions for developing a related but distinct set of skills.
- Include courses specifically devoted to the prevention and management of the diseases most critical to India’s future public health.
- Provide for short-term training for the staff of India’s health system, including especially managers and nonphysician personnel.
- Regularly carry out joint research projects in cooperation with India’s medical and social science institutions. This could be facilitated if India set up a program of competitively bid, multidisciplinary research grants (see recommendation 5 above).
- Develop mechanisms for short-term exchanges with India’s high-end private hospitals. The hospitals could use this relationship to learn outreach skills in which they are currently weak; the public health schools would gain a window on the parts of the health system that are outside the government ambit.

The institutes’ role in U.S.-India HIV/AIDS cooperation. The institutes’ role in strengthening public health would be a major contribution to the fight against HIV/AIDS. Three additional features would further strengthen their value in U.S.-India cooperation on HIV/AIDS:

- Establishment of a unit or department specifically devoted to HIV/AIDS, with substantial outreach to the key clinical facilities doing AIDS prevention and treatment work. Chennai would be the most obvious location for this facility, in light of the wealth of government and private

organizations doing AIDS work there. This would become a center of excellence for integrated work on large-scale AIDS prevention.

- Establishment of an international fellowship program that would bring people from other AIDS-affected countries to the institutes, both for short courses and for longer degree programs. This would have the additional benefit of increasing the Indian faculty's exposure to the experience of other countries with HIV/AIDS.
- Creation of a dedicated fellowship program for exchanges of researchers and faculty between India and the United States.

Appendix. Additional Sources of Information

Government Collaboration

Fogarty International Center (dated information)
<http://www.fic.nih.gov/regional/sasia.html>

National AIDS Control Organization (Government of India)
<http://www.nacoonline.org/>

Indo-U.S. Vaccine Action Program (VAP)
<http://www.niaid.nih.gov/dmid/other/indo/default.htm#c>

The AIDS International Training and Research Program at the Fogarty Center
<http://www.fic.nih.gov/programs/aitrp/aitrp.html>

Centers for Disease Control & Prevention
<http://www.cdc.gov/nchstp/od/gap/countries/india.htm>

USAID
<http://www.usaid.gov/in/UsaidInIndia/articles92.htm>

Private Nonprofits

Bill & Melinda Gates Foundation
<http://www.gatesfoundation.org/GlobalHealth/HIVAIDSTB/HIVAIDS>

William J. Clinton Foundation
<http://www.clintonfoundation.org/programs-hs-ai.htm>

Multilateral

WHO
<http://www.who.int/countries/ind/en/>

World Bank
<http://www.worldbank.org.in>

UNAIDS
<http://www.unaids.org/EN/Geographical+Area/by+country/india.asp>

Universities and Scientific Establishments

Center for Health, HIV/AIDS Research and Training (CHART-India) at the University of South Florida
<http://publichealth.usf.edu/chartindia/index.html>

Johns Hopkins Bloomberg School of Public Health

<http://commprojects.jhsph.edu/research/Country.cfm?id=103&country=India>

HIV/STD Prevention Trial Project

<http://www.rti.org/u10/>

The Carolina Population Center at the University of North Carolina at Chapel Hill

<http://www.cpc.unc.edu/projects/grants.php?show=3>

Yale Center for Interdisciplinary Research on AIDS (CIRA)

<http://cira.med.yale.edu/news/jan05/inauguration.html>

University of Washington at Seattle I-Tech Initiative

<http://www.go2itech.org/itech?page=co-05-00>

Business

Global Business Coalition

<http://www.businessfightsaids.org/site/pp.asp?c=nmK0LaP6E&b=89994>

Indian-American Initiatives

AAPI

www.sharehealth.net

SAATHII

www.saathii.org

MediCiti

www.ichhaindia.org

Metro Foundation

www.themetrofoundation.org