

CHAPTER 4

Research Support and Dissemination

Training, Infrastructure, and Capacity Building
Information Dissemination

Training, Infrastructure, and Capacity Building

AREA OF EMPHASIS

Training, Infrastructure, and Capacity Building

SCIENTIFIC OBJECTIVES AND STRATEGIES**OBJECTIVE—A: *Research Training***

Provide training domestically and internationally in biomedical, social, and behavioral research on HIV, with an emphasis on multidisciplinary research in racially and culturally diverse settings domestically, and with attention to the needs of marginalized communities domestically and in developing countries with high incidence and/or high prevalence of HIV infection.

STRATEGIES

- Increase predoctoral, doctoral, postdoctoral, and advanced research training across a broad range of AIDS-related disciplines.
- Support multidisciplinary training and mentoring programs to strengthen HIV/AIDS intervention research including behavioral interventions, vaccines, microbicides, therapeutics, coinfections such as tuberculosis (TB), sexually transmitted diseases, interventions to interrupt mother-to-child transmission (MTCT), nutritional interventions, and substance abuse prevention and treatment, all in the context of HIV infection.
- Expand the NIH AIDS Loan Repayment Program to increase the number of U.S. scientists and physicians from disadvantaged backgrounds, including racial and ethnic minorities, to come to the NIH to boost the cadre of trained HIV/AIDS researchers.
- Expand programs for HIV/AIDS research to develop culturally appropriate and relevant training and mentoring models to be applied to HIV-affected minority communities.
- Develop and implement programs at domestic institutions, with attention to institutions serving women and individuals from disadvantaged backgrounds, including racial and ethnic minorities, to provide precollege training to attract students interested in behavioral and biomedical sciences related to HIV/AIDS research.
- Expand the pool of domestic HIV/AIDS diversity supplement awards to ensure the research capacity of underrepresented minority investigators to make them more competitive for independent funding.

- Support HIV/AIDS research planning and organizational grants targeting domestic minority institutions and minority-serving communities. Emphasis should be placed upon grants that develop academy-community partnerships.
- Enhance opportunities through all Institutes and Centers (ICs) and programs to improve mechanisms for recruiting, training, mentoring, and retaining biomedical, behavioral, and social scientists in the conduct of interdisciplinary sex and gender analyses in HIV/AIDS research.
- Provide new opportunities and programs to attract newly trained investigators and established researchers from other fields to pursue HIV/AIDS research.
- Develop funding mechanisms to foster better linkages across AIDS-related scientific disciplines, including basic, clinical, epidemiologic, statistical, social, and behavioral science.
- Expand opportunities for institutions serving specific diverse populations at risk for HIV/AIDS to develop equal and productive partnerships with U.S. majority institutions.
- Facilitate the establishment of research partnerships between minority institutions and the communities they serve by enhancing and expanding initiatives that support research in diverse communities.
- Increase training to strengthen local capacity to conduct multidisciplinary AIDS-related prevention, vaccine, and therapeutic research in developing countries and emerging democracies by scientists from these countries.
- Strengthen cultural competency training and ethical training for the conduct of HIV/AIDS prevention, vaccine, and therapeutic clinical trials in domestic and international vulnerable populations.
- Support training programs for the diagnosis, prevention, and treatment of HIV infection and/or disease in resource-poor countries.
- Support training programs for the diagnosis, prevention, and treatment of nosocomial infections control, including TB, in resource-poor countries.
- Provide support for all HIV/AIDS training materials such as CD-ROM- and Web-based training and training sessions; all training materials must be adapted for local languages.
- Provide training in Good Laboratory Practices (GLP)/Good Clinical Practices (GCP) for translational processes and in product development in both domestic and international settings conducting HIV/AIDS clinical trials or research.
- Implement new funding mechanisms to provide research training to nonphysician professionals (e.g., physician assistants and nurse practitioners) to increase the pool of HIV/AIDS minority researchers at domestic sites and at resource-poor settings.
- Develop collaborative evaluation research efforts to assess the efficacy of strategies to shift HIV care tasks from higher-intensity to lower-intensity trained individuals in resource-limited settings.

- Support the training of biomedical and behavioral scientists in both developed and developing countries in the use of advanced computer and information technologies for HIV-related research, and ensure access to appropriate tools and equipment at the end of training.
- Support veterinary residency training programs in primate medicine at National Primate Research Centers (NPRCs) or other primate facilities to help to increase the number of highly trained veterinarians who can manage the increasing needs for HIV/AIDS nonhuman primate (NHP)-dedicated colonies.
- Support the training of veterinarian scientists who contribute to the growing need for interdisciplinary-trained researchers who help to understand both the microbial/infectious disease aspects as well as the animal model side of HIV/AIDS research in NHPs.
- Develop new models of integrated training that focus on the protection of human and animal subjects enrolled in HIV/AIDS clinical trials and on ethical issues of clinical trial design and implementation of vaccine and other prevention modalities in at-risk populations, in both domestic and international settings.
- Support training programs for personnel in resource-poor-setting institutions to strengthen the administrative and financial management capacity needed to conduct HIV/AIDS-related research.
- Expand programs to increase opportunities for scientists from developing countries and emerging democracies trained through the NIH to conduct AIDS research in their home countries (e.g., reentry grants).
- Develop new funding mechanisms and expand existing grant mechanisms to link U.S. AIDS research scientists, industry partners, and relevant institutions with each other and with investors and institutions in both developed and developing countries.
- Take advantage of existing AIDS clinical trial infrastructures to develop specific training programs in clinical trials methodology, including issues related to the design, recruitment, retention, target population dynamics, and analysis of data, domestically and internationally.
- Expand training programs on the effective use of HIV/AIDS antiretroviral drugs and prophylactic and therapeutic interventions for coinfections/opportunistic infections as well as adequate monitoring for patient safety.
- Develop training to prevent transmission of HIV and hepatitis C (HCV) in resource-poor health care facilities, including recruitment and retention of appropriate blood donors, predonation counseling of all blood donors, improvement of blood screening strategies and technologies, and appropriate use of transfusion.
- Support training opportunities for HIV prevention researchers interested in adding specific methodological skills to their research expertise (e.g., methods to conduct cost-effectiveness analyses, measurement of biologic outcomes in behavioral intervention studies, appropriate use

of behavioral and social science measures in clinical trials, ethnographic and other qualitative methods, and network analysis).

- Support the training of members of HIV/AIDS-affected communities, to strengthen their ability to be informed partners in biomedical and behavioral science research.

OBJECTIVE–B: Infrastructure Development

Establish and maintain the appropriate infrastructure needed to conduct HIV research domestically and internationally with emphasis on populations of high prevalence.

STRATEGIES

- Increase research infrastructure at U.S. minority-serving institutions to improve capacity to support HIV/AIDS research.
- Enhance, improve, and maintain research capacity and infrastructure in resource-poor settings with high HIV incidence, with particular emphasis on construction and operation of facilities for research on HIV prevention, including the development of vaccines and microbicides, as well as clinical trials for therapies and behavioral interventions.
- Enhance and improve the clinical trial research infrastructure for the conduct of prevention, vaccine, and therapeutics trials in domestic and foreign sites, including laboratory capacity, trained scientists and other personnel, appropriate participant cohorts, and mechanisms to address ethical issues such as the implementation of ethical committees and translated human rights documents.
- Enhance and improve research capacity and infrastructure to advance research on AIDS-associated coinfections (HCV, herpes simplex virus type 2, Kaposi's sarcoma-associated herpesvirus or human herpesvirus type 8, human papillomavirus, Epstein-Barr virus, TB, and malaria) and associated malignancies.
- Support an adequate infrastructure for producing HIV/AIDS vaccine candidates, for preventive and therapeutic vaccine trials, under Good Manufacturing Practices (GMP).
- Support and expand adequate facilities and resources as well as appropriate ethical and procedural training to conduct HIV-related research in animal models.
- Expand the production of genetically defined specific pathogen-free (SPF) NHP, with emphasis on Indian-origin rhesus macaques.
- Develop and characterize appropriate reagents for use in HIV-related research conducted in different species of macaques and also other NHPs.
- Maintain programs that enhance the current research infrastructure, particularly the trans-NIH infrastructure, such as the Centers for AIDS Research (CFARs), the Research Facilities Improvement Program, the NPRCs, and the Clinical and Translational Science Awards.
- Provide support for, and awareness of, the Biomedical Technology Resources Program for structural studies of HIV proteins and host proteins in the context of HIV infection.

- Provide for the long-term support of advanced in-country research in resource-poor settings participating in priority AIDS-related intervention research, such as methods to interrupt mother-to-child, sexual, or parenteral transmission, or trials of candidate HIV vaccines.
- Increase collaboration between community-based organizations (CBOs) and other Government-supported service providers (such as those funded through the Health Resources and Services Administration [HRSA], the U.S. Department of Veterans Affairs, and the Centers for Disease Control and Prevention [CDC]) and academic researchers, to improve the quality and capacity of HIV/AIDS research endeavors in service settings.
- Establish and support quality-controlled repositories for, and ensure access by, qualified scientists to human samples (e.g., serum, peripheral blood mononuclear cell, plasma, patient-derived cell lines, cerebrospinal fluid, semen, breast milk, lymphoid tissues, and other key patient samples) and HIV strains from clinical trials and natural history and epidemiological studies, especially in complex study settings (e.g., MTCT studies).
- Develop, maintain, and effectively utilize domestic and international cohorts, repositories, and nested studies among populations experiencing emerging and ongoing HIV epidemics to establish databases that support analyses of host and viral characteristics.
- Maintain the present AIDS-related tumor registries, and ensure linkages between AIDS and cancer registries, for both domestic and international studies.
- Improve and adequately disseminate the process of requesting, prioritizing, and receiving HIV/AIDS laboratory samples, so that access is as timely and equitable as possible.
- Promote Internet connections and availability of pertinent information technology at health science centers, hospitals, outpatient clinics, CBOs, and other access points, both domestically and internationally, for HIV-related research and patient care.
- Develop statistical sampling methodologies, data collection protocols, and statistical analysis tools that are easy to use and adaptable to different settings; facilitate efficient statistical analysis and report generation and enhance standardization, when appropriate, in the context of HIV/AIDS research.
- Promote research in, and application of, medical informatics (e.g., high-performance computing) for HIV/AIDS research and clinical practice in resource-poor settings, both domestically and internationally.
- Enhance coordination and collaboration among NIH-supported investigators, other U.S. Government agencies, and other international agencies conducting HIV/AIDS research in the same developing countries.

- Develop efficient and effective systems for collecting and managing HIV/SIV (simian immunodeficiency virus)/SHIV (chimeric simian/human immunodeficiency virus) multiple-center and single-site clinical and animal model trial data; ensure timely and accurate dissemination of clinical and animal model trial information.

Information Dissemination

AREA OF EMPHASIS

Information Dissemination

SCIENTIFIC OBJECTIVES AND STRATEGIES**OBJECTIVE—A: *Disseminate Information to All Constituencies***

Support the effective dissemination, communication, and utilization of HIV and AIDS information to all constituent communities of the NIH, domestically and internationally.

STRATEGIES

- Rapidly disseminate new research findings, including information on the potential implications for prevention, care, and treatment of HIV-infected individuals, using existing and innovative methods.
- Promote study designs that include plans for dissemination of appropriate and relevant findings to study participants, health care practitioners, community representatives, and policymakers.
- Facilitate the development of HIV prevention and treatment guidelines based on the latest clinical research findings.
- Utilize computer and other information dissemination technology (including the Internet) to disseminate up-to-date HIV and AIDS information; information about HIV therapeutic, vaccine, microbicide, and prevention trials; and information about HIV training programs.
- Expand access to and education about current state-of-the-art treatment and patient management guidelines, including information on clinical trials, using multiple technologies such as online access and voice access (*AIDSinfo*).
- Widely disseminate information concerning specimen repositories, including existing repositories, specimens available, and relevant information concerning cohorts, contact information, and the process for obtaining access to samples.
- Collect, archive, and promote use of existing data from NIH-supported basic and applied research for secondary data analysis, including rapid development of public use data sets that can be used for secondary data analysis in NIH-supported studies, especially baseline survey and HIV/STD (sexually transmitted disease) incidence data.
- Improve current techniques and develop and evaluate new techniques for the two-way communication of information to scientific and lay audiences, particularly to hard-to-reach populations, including information about clinical trials.

- Improve outreach and support access to AIDS information resources (including computers) by community groups, health care providers, and community-based AIDS service organizations, including those serving minority communities.
- Work with community-based organizations (CBOs), nongovernment organizations (NGOs), and local agencies to develop and promote effective methods of information dissemination on treatment, prevention, and research in target populations to increase awareness and reduce stigma.
- Support dissemination of information, including to constituent communities, in culturally and linguistically appropriate ways.
- Develop and disseminate educational information to enhance understanding of HIV and basic and clinical research processes by health care providers, community-based AIDS service organizations, social service organizations, policymakers, and persons with HIV and AIDS.
- Develop and disseminate information resources about HIV prevention, vaccine, and treatment clinical trials to increase awareness about research in these areas and the importance of supporting and participating in clinical studies.
- Evaluate the effectiveness of communication efforts by appropriate means, including obtaining feedback from target audience members through such methods as usability testing of paper and computer interfaces (see www.usability.gov) and information dissemination intermediaries, such as journalists and health educators.
- Promote wide dissemination of the annual *Trans-NIH Plan for HIV-Related Research* and other HIV-related reports as they become available.
- Promote and enhance the exchange of scientific information and communication between public and private research enterprises, such as enhancing communication with the pharmaceutical industry concerning research on the development of therapeutics, vaccines, and microbicides, and working with industrial scientists to make information concerning basic science and HIV protein structures available to the general scientific community.
- Communicate and exchange information internationally on topics such as prevention and treatment, patient management guidelines, and research results that improve the care of HIV-infected individuals, including those in developing countries.
- Support the exchange of basic and applied research information at community, regional, national, and international conferences and workshops.
- Support the cross-collaborations of HIV and AIDS information providers to develop more integrated and comprehensive information dissemination approaches.
- Provide online access to presentation materials, including full text of abstracts and other information (e.g., slides, graphics, plenary presentations) from scientific meetings.

OBJECTIVE–B: *Develop New Communications Strategies*

Support research to identify existing gaps in communication approaches, identify and evaluate existing strategies, and develop and test new and innovative communication strategies that will improve access to and use of state-of-the-art HIV information by all relevant target audiences, domestically and internationally.

STRATEGIES

- Assess the information needs and resources used by various audiences, including biomedical and behavioral research communities, health care providers, service providers, persons living with HIV and their advocates, at-risk populations, scientific and lay media, and the general public.
- Identify obstacles to information dissemination and develop, test, and evaluate possible ways to overcome these obstacles.
- Develop, test, and evaluate innovative strategies for effectively reaching specific audiences (e.g., minority communities, adolescents, drug users, other hard-to-reach populations, and health care providers) with relevant HIV information.
- Investigate how and under what circumstances different communication and dissemination strategies influence the adoption of scientifically based HIV behavior-change interventions and clinical practices in specific audiences.
- Promote use of new technologies and evaluate their effectiveness for disseminating basic and clinical research findings.
- Work to reduce communication gaps between academic researchers and treatment providers so that research results are more effectively disseminated to providers and that research agendas reflect the needs of practicing clinicians.

OBJECTIVE—C: *Coordination and Collaboration Efforts*

Develop, implement, and evaluate methods of coordination and collaboration on HIV/AIDS communications activities among NIH Institutes and Centers (ICs) and with other Federal and non-Federal groups, and international partners.

STRATEGIES

- Build and enhance partnerships among CBOs/NGOs and basic, clinical, and behavioral researchers to encourage exchange of information and experience.
- Promote and foster information dissemination regarding research and programmatic efforts across the ICs, among U.S. Government agencies, and with international partners.
- Promote collaboration among all ICs in providing information about their HIV/AIDS clinical trials to AIDSinfo and ClinicalTrials.gov.
- Expand the development of HIV/AIDS resources on the Internet to facilitate national and international research collaboration and data sharing.
- Continue collaborations with the Joint United Nations Programme on HIV/AIDS, the Pan American Health Organization, and other international AIDS agencies or societies on information/communications efforts, including information about international clinical trials.
- Collaborate with public and health sciences libraries, health care providers, AIDS Education and Training Centers, and community-based HIV/AIDS service organizations to facilitate access to needed information.
- Expand collaboration to include academic, medical, and other communities, as appropriate, in the dissemination of NIH HIV-related reports.