

GHESKIO

The Haitian Group for the
Study of Kaposi's Sarcoma and
Opportunistic Infections



Port-Au-Prince, Haiti

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INTRODUCTION

The Mission of GHESKIO

GHESKIO is a Haitian non-profit organization dedicated to providing clinical service, conducting research, and offering training in HIV/AIDS and related diseases. Working in partnership with the Haitian Government, GHESKIO provides integrated primary care services, including HIV prevention, AIDS care, prenatal care, and management of tuberculosis and sexually transmitted infections. Through the conduct of research, GHESKIO defines HIV/AIDS treatment and prevention models for Haiti. Through training, GHESKIO expands these models to the national level.

Haiti and the Caribbean

Haiti occupies the western third of the island of Hispaniola (see map), sharing the island with the Dominican Republic. Haiti's population is 8.5 million people. The former French colony was the second independent country in the Americas after the United States and the first independent black republic in the world. Despite Haiti's long history of independence, it remains the poorest nation in the Western Hemisphere. Haiti is also the country with the highest HIV burden in the Western Hemisphere and home to more than 50% of all HIV infections in the Caribbean. The GHESKIO center is located in Haiti's capital and largest city, Port-Au-Prince.

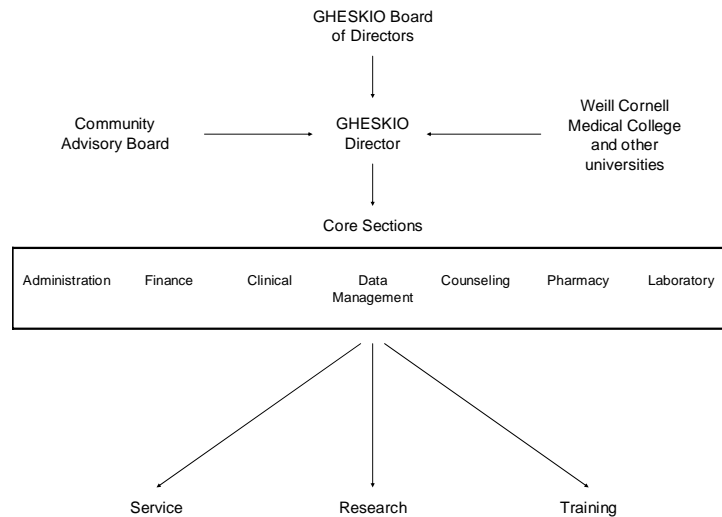


The History of GHESKIO

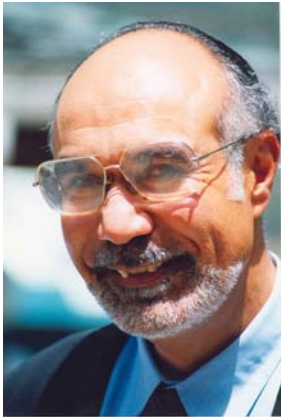
In the early 1980s, a group of Haitian clinicians and public health professionals began to notice a growing number of patients dying from Kaposi's Sarcoma and unusual opportunistic infections. In 1982, they founded the Haitian Group for the Study of Kaposi's Sarcoma and Opportunistic Infections (GHESKIO). In 1983, GHESKIO published their experiences in *The New England Journal of Medicine*, documenting the first cases of AIDS in a developing country. In 1987, GHESKIO was recognized as an official independent Non-Governmental Organization by the Haitian Government. In 2000, the Haitian government conferred upon GHESKIO a status of "Public Utility," a designation reserved for institutions "essential to the welfare of the Haitian people," such as the Haitian Red Cross. For more than twenty years, GHESKIO has served as the Haitian Government's research and training center for HIV/AIDS, and it is now an internationally recognized center of excellence.

The Organizational Structure of GHESKIO

Dr. Jean Pape has been the director of GHESKIO since its inception, and many of GHESKIO's staff have been with the center for more than twenty years. As illustrated below, Dr. Pape works with the Board of Directors, the Community Advisory Board, and the Weill Cornell Medical College and other universities to coordinate the core sections of the center. These core sections work together to provide clinical services to patients, conduct research, and provide training. Developments in service and research are scaled up to meet the health care needs of Haitians throughout the country through GHESKIO's training programs.



The Board of Directors



Jean W. Pape, MD is the founding and current director of GHESKIO and a Professor of Medicine at the Weill Medical College of Cornell University. Dr. Pape graduated from the Weill Medical College of Cornell University in 1975. After completion of postdoctoral training in infectious diseases at Cornell, he returned to his native Haiti to study child diarrhea. Dr. Pape noted an increase in adult mortality related to diarrhea and with GHESKIO published the first comprehensive description of AIDS in the developing world in 1983. He has become an international leader in efforts to implement programs for the prevention and control AIDS and tuberculosis in Haiti and other resource-poor countries, providing counsel to international organizations on bioethics, health disparity, and global infectious disease. He has received numerous international awards for his work and was elected to the U.S. National Academy of Science's Institute of Medicine in June 2003.



Marie Marcelle Deschamps, MD is the General Secretary of GHESKIO. She received her medical education at the State University of Haiti and postgraduate training in infectious diseases at the National Institute of Allergy and Infectious Diseases. Dr. Deschamps has been a member of GHESKIO since 1983, and has introduced many of GHESKIO's women's health programs, including reproductive health care, the prevention of mother to child transmission of HIV, and care for women who have suffered sexual violence. Dr. Deschamps is the author of peer-reviewed publications on clinical and interventional studies of HIV and its co-infections. She has received numerous honors for her contributions to AIDS care and research in Haiti, including the Legion of Merit from French President Jacques Chirac in 2004.



Reynold Grand-Pierre, MD directs the expansion of GHESKIO's model for comprehensive care nationwide through the HIV Care and Prevention Network. Dr. Grand-Pierre graduated from the State University of Haiti Medical School and received postdoctoral training in obstetrics and gynecology, reproductive health, and sexually transmitted diseases in Haiti, France, and the United States. Dr. Grand-Pierre joined GHESKIO in 1997 after working with the Cornell Infectious Diseases Research Unit and the State University Hospital in Haiti. At GHESKIO, Dr. Grand-Pierre developed the program for the prevention of mother to child transmission of HIV.



Rose Irene Verdier, MD is the Institutional Review Board Coordinator for the GHESKIO Center. Dr. Verdier received her MD degree from the State University of Haiti in 1979 and trained in Pediatrics at the University Hospital. She was recruited to GHESKIO in 1984. Dr. Verdier serves as the GHESKIO regulatory person and the Institutional Review Board liaison between GHESKIO and its collaborators. With support from UNICEF, she also coordinates GHESKIO efforts to provide care to street children in Port-Au-Prince. Dr. Verdier has co-authored many peer-reviewed publications, including several on HIV and coccidia.



Marie Eugene Beaulieu, MLT is the Director of Laboratories at GHESKIO. She received her degree from the New York University School of Medical and Dental Assistants. In 1980, she joined GHESKIO as the Center's first employee. Ms. Beaulieu has contributed to the planning, implementation, and execution of all clinical trials conducted at GHESKIO. She also plays a central role in expanding GHESKIO's laboratory capacity nationwide through support and development of medical laboratories throughout the country.

National Implementation of GHESKIO Models

GHESKIO's commitment to service, research, and training has led to the expansion of many GHESKIO models to the national level. GHESKIO has expanded models for HIV care and prevention, treatment of sexually transmitted infections, care for diarrheal diseases, blood safety, AIDS treatment, and the prevention of congenital syphilis. Through the development of national programs to address major health issues, GHESKIO plays a catalytic role in improving public health in Haiti.

The Oral Rehydration Unit

In September 1980, the Rehydration Unit dedicated to the treatment of infants and children with diarrhea and dehydration was established by Dr. Pape at the State University Hospital in Port-Au-Prince. The Unit served as a teaching center in the use of oral rehydration for physicians, nurses, and students. After its inception, there was been a decrease in hospital pediatric mortality for dehydration-associated diarrhea from 40% to 1%. As of December 2001, this Unit provided care for over 100,000 children with dehydration and trained over 14,000 healthcare workers throughout Haiti. The training in oral rehydration provided by this Unit is largely credited with dramatic decrease in national infant mortality from 140 per 1,000 live births in 1982 to 74 per 1,000 live births in 1994. With the expansion of the program and training of parents, more mothers utilize oral rehydration therapy at home, resulting in a marked decrease in hospital admissions in the Rehydration Unit. The treatment and training programs were so successful that in December 2001, the Rehydration Unit at the State University Hospital was closed for lack of patients. Of note, GHESKIO's early, dramatic success in treating infantile diarrheal illnesses led to the development of related treatments for the growing number of HIV/AIDS patients with diarrhea during the early 1980s.

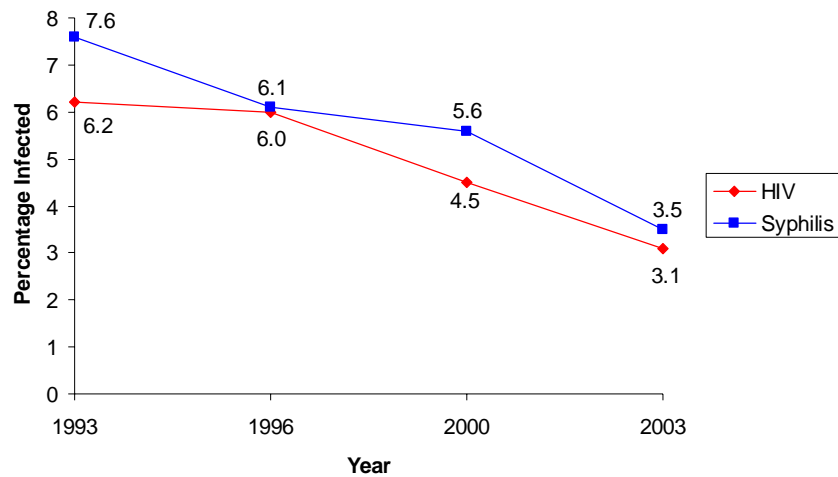
Blood Banks and the Haitian Red Cross

Early in the HIV epidemic, GHESKIO identified contaminated blood products as a major route of HIV transmission. As a result, in 1985 the Haitian Government, with the support of the Haitian Medical Association, closed for-profit blood banks and designated the Red Cross as the sole institution in Haiti responsible for blood safety. For the past twenty years, GHESKIO's laboratory has provided training and quality control for the Red Cross laboratories. GHESKIO Director Dr. Jean Pape serves on the Board of the Haitian Red Cross. The Joint United Nations Program on HIV/AIDS (UNAIDS) credits this prompt response to protect blood safety as a key factor in the decrease in HIV prevalence in Haiti from 6% in 1993 to 3% in 2003.

Decreasing HIV and Syphilis Seroprevalence in Haiti

As GHESKIO's care and prevention services for HIV and sexually transmitted infections have been expanded, the prevalence of HIV and syphilis in Haiti has decreased. In 1993, 6.2% of Haitians were HIV-positive and 7.6% had syphilis. As illustrated in the figure below, the rate of HIV infection in Haiti decreased to 3.1% in 2003. The rate of syphilis infection was also reduced to 3.5%. In partnership with the Haitian government and other non-profit organizations fighting HIV/AIDS in Haiti, GHESKIO has set a national goal of an HIV seroprevalence rate of 1.5% in 2013.

Seroprevalence of HIV and Syphilis in Haiti



The Elimination of Congenital Syphilis

Congenital syphilis is one of the major causes of perinatal deaths in Haiti and many developing countries, despite the fact that it can be prevented by screening pregnant women with a blood test and administering penicillin to those testing positive for syphilis. In the past, pregnant women in Haiti either did not have access to syphilis screening or were screened under a centralized lab testing system. Under this system, blood samples are collected at a community dispensary and then sent to a regional hospital for testing. The results must then be returned to the dispensary and patients testing positive for syphilis must also come back to the clinic for treatment. In collaboration with the Haitian Government and the World Health Organization, GHESKIO researchers have developed a model for decentralized screening, allowing same-day testing and treatment of pregnant women for syphilis. This model relies on new rapid syphilis tests which can be simply performed by clinicians working in remote rural clinics. In Haiti's rural Artibonite Valley, the rate of congenital syphilis decreased by 75% when the new screening model was implemented. With GHESKIO training, the model is being expanded to the national level, providing Haitian women throughout the country access to prenatal syphilis screening. The success of this GHESKIO project offers hope in Haiti and other developing nations for the elimination of congenital syphilis.

SERVICE

Integrated Primary Care for HIV and Related Diseases

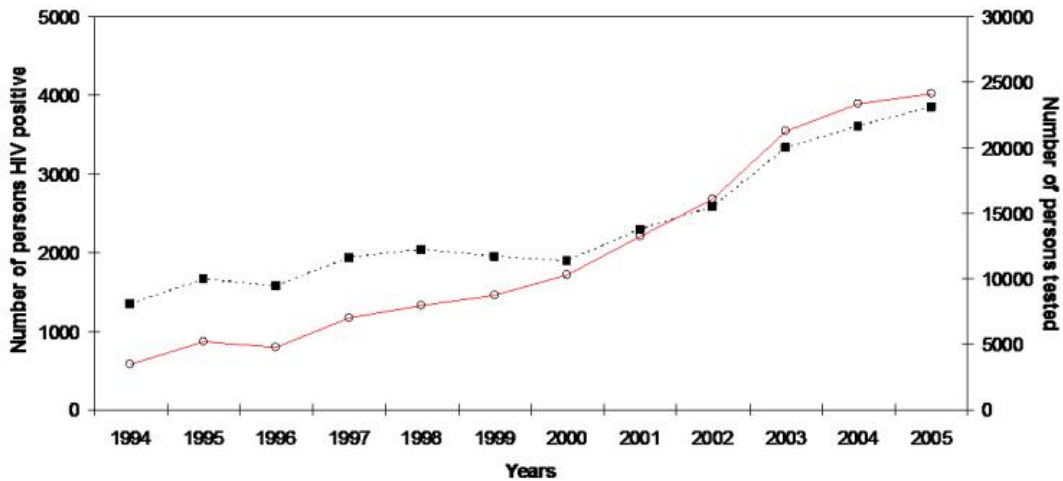
In 1985, GHESKIO opened the first Voluntary Counseling and Testing Center in Haiti. As the link between HIV/AIDS, sexually transmitted infections, tuberculosis, and overall reproductive health became clear, GHESKIO developed a model of comprehensive care for HIV/AIDS and related illnesses. Central to the GHESKIO model is the concept that an individual at risk or already infected with HIV should be quickly identified and provided access to a package of services including voluntary counseling and testing, management of sexually transmitted infections, tuberculosis screening and treatment, reproductive health services, HIV care including antiretroviral therapy, and services to prevent mother to child transmission of HIV. Currently, GHESKIO receives about 100,000 patient visits annually. Importantly, the health care provided by GHESKIO is free of charge, including services and medications. This is critical because the population served by the clinic comprises Haiti's extreme poor and includes those at highest risk for communicable diseases. The standard of care offered approximates that offered by the best private practitioners and facilities in Haiti. GHESKIO's primary care services are described below.

HIV Counseling And Testing	All patients tested for HIV receive pre and post-test counseling. Counseling includes an assessment of the patient's knowledge of HIV transmission and the development of a personalized HIV risk-reduction strategy for each patient. All patients are encouraged to visit the family planning clinic, where condoms and other family planning options are offered. Individualized counseling is provided for each HIV-positive patient.
Adult AIDS Care	Comprehensive HIV/AIDS care including antiretroviral therapy is offered with a focus on the HIV-affected family. For patients who cannot travel to the center, home care is provided. The quality of HIV/AIDS care is comparable to care provided at academic medical centers in the United States.
Adolescent Care	Primary care for adolescents who are HIV infected or at high risk of HIV infection is provided in a clinic specifically designed for teens between the ages of thirteen and nineteen.
Pediatrics	GHESKIO's pediatric infectious disease specialists provide AIDS care and antiretroviral therapy to HIV-infected children and infants born to HIV infected mothers.
Sexually Transmitted Infections	GHESKIO provides diagnosis and treatment for several thousand patients with sexually transmitted infections such as syphilis, gonorrhea, and Chlamydia each year. In collaboration with the Ministry of Health, GHESKIO developed national guidelines with simple algorithms for diagnosis, treatment, and preventative counseling for sexually transmitted infections.
Rape Counseling	Specialized counseling, post-exposure antiretroviral therapy, emergency contraception, and treatment for sexually transmitted diseases are provided to women who have suffered sexual violence.
Tuberculosis	GHESKIO has one of the largest outpatient tuberculosis populations in Haiti. Annually, about 500 patients are diagnosed and receive treatment. The center has developed new ways to improve patients' compliance and to identify those who have multiple-drug-resistant infections.
Reproductive Health	The Reproductive Health Unit is integrated with all other services provided by GHESKIO, offering family planning services and prenatal/obstetrical care. The Reproductive Unit oversees the program to prevent mother to child HIV transmission, combining antiretroviral drugs and provision of artificial milk to prevent transmission during breast feeding. For HIV-infected pregnant women at GHESKIO, the mother to child HIV transmission rate has been reduced from 30% to 9%.

HIV Voluntary Counseling and Testing at GHESKIO

Voluntary Counseling and Testing (VCT) is an effective and affordable method for reducing the transmission of HIV in Haiti and other developing countries. Below is a figure representing the number of patients tested at GHESKIO and the number of patients testing positive for HIV. The number of people seeking HIV Voluntary Counseling and Testing at GHESKIO increased from 3,450 to 23,313 between 1994 and 2004, an increase of 675%. There was also an increase in the number of patients testing positive for HIV, from 1,344 in 1994 to 3,607 in 2004.

HIV Testing and Seropositivity at GHESKIO



AIDS Treatment

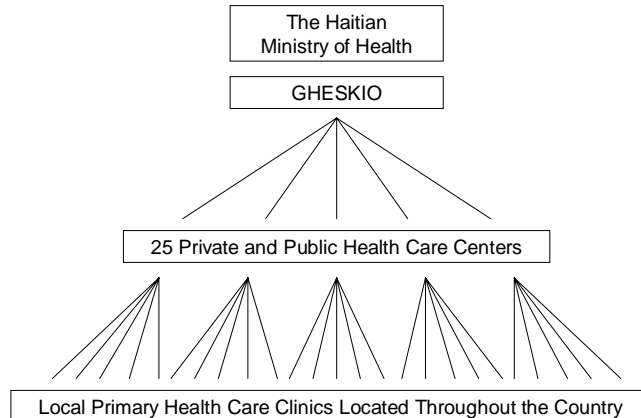
GHESKIO provides three-drug antiretroviral therapy to thousands of adults, adolescents, and children who present with AIDS, with support from the U.S. President's Emergency Plan for AIDS Relief and the Global Fund to Fight AIDS, Tuberculosis, and Malaria. Through the integration of primary care and social support programs, GHESKIO addresses challenges to providing antiretroviral therapy in developing countries, including poverty, political unrest, malnutrition, and tuberculosis. As a result, treatment outcomes for GHESKIO patients on antiretroviral therapy are comparable to those of patients treated in HIV clinics in the best academic medical centers in the United States. GHESKIO's antiretroviral therapy program is being used as a model to train health care workers throughout Haiti in the treatment of AIDS.

Social Support

GHESKIO provides nutritional and financial support to the most distressed patients. Nutritional support includes multivitamins and monthly stocks of food. Financial support is provided through the Micro Credit program, which targets both HIV positive women and HIV negative women who have been abused by their partners. The goals of the Micro Credit program include improving the women's economic status and quality of life and increasing their autonomy. Participants are given grants to fund small business activities and participate in financial education programs and focus groups. Long-term participation in the program is encouraged and includes low-interest loan programs and financial mentorship. The Micro Credit program is supported by the Rodolphe Mérieux Foundation and the ACME Microfinance Institution.

The Haitian HIV Care and Prevention Network

Based on GHESKIO's successful track record of providing integrated care, and because the demand for HIV services is outpacing the capacities of the GHESKIO Center, GHESKIO has been asked by the Haitian Government to expand its model program to 25 private and public hospitals and health clinics throughout the country as a part of the Haitian HIV Care and Prevention Network. The centers in turn provide training to other local primary health care clinics. The HIV Care and Prevention Network is a central part of a national scale-up of HIV services in Haiti and is supported by the Global Fund Against AIDS, Malaria, and Tuberculosis and the President's Emergency Plan for AIDS Relief.



RESEARCH

Through clinical and operational research, GHESKIO seeks to define treatment and prevention models for HIV/AIDS and related diseases that are appropriate and effective for Haiti. The main focus of the research is HIV, sexually transmitted infections, and tuberculosis. The GHESKIO research program has evolved from early observational studies to large clinical trials and its designation as an international research center of excellence. In 1983, GHESKIO established its initial funding from the National Institutes of Health to define the epidemiology, natural history, risk factors, and associated co-infections of HIV/AIDS. Since then, GHESKIO's consistent research productivity has been recognized by uninterrupted support from the National Institutes of Health, a MERIT award in 1990, and twenty new or competitive renewal grants. GHESKIO also conducts research with support from the World Health Organization and the French Government's Agence Nationale de Recherches sur le SIDA.

Research Ethics and the Institutional Review Board

GHESKIO is committed to the ethical conduct of research following the international standards of the Helsinki Declaration. In 1983, GHESKIO established an Institutional Review Board responsible for reviewing the ethics of research protocols. The Board has US Federal Wide Assurance and is registered with the Office for Human Research Protections. There are nine Institutional Review Board members, eight of whom are independent from GHESKIO. With support from the Fogarty International Center, the board receives training from the Hastings Center of Bioethics.

Members of the Institutional Review Board

Alix Lesegue, MD (Chair)	Internist
Elizabeth Wooley, JD (Vice Chair)	Lawyer
Beatrice Turnier (Secretary)	Psychologist
Maxi Ascencio, MA	Psychologist
Madeline Boncy, MS	Laboratory technician
Raynold Boncy	Engineer
Roger Lagagneur	Teacher
Claude Pean, MD	Dermatologist
Pricilla Jean Baptiste, MD	Pediatrician

Seminal Publications of GHESKIO

- 1983 “Characteristics of the acquired immunodeficiency syndrome (AIDS) in Haiti.” The first description of the syndrome in a tropical developing country. *The New England Journal of Medicine*.
- 1985 “The acquired immunodeficiency syndrome in Haiti.” Identified the role of contaminated blood transfusions early in the HIV epidemic in Haiti. *Annals of Internal Medicine*.
- 1986 “Clinical manifestations and therapy of *Isospora belli* infection in patients with the acquired immunodeficiency syndrome.” Described isosporiasis in AIDS patients and the effectiveness of trimethoprim-sulfamethoxazole in therapy and prevention of recurrence. *The New England Journal of Medicine*.
- 1989 “Treatment and prophylaxis of *Isospora belli* infection in patients with the acquired immunodeficiency syndrome.” Established the efficacy of trimethoprim-sulfamethoxazole in initial therapy and prophylaxis of cyclosporiasis and isosporiasis. *The New England Journal of Medicine*.
- 1993 “Effect of isoniazid prophylaxis on incidence of active tuberculosis and progression of HIV infection.” Determined that isoniazid prevents tuberculosis and delays the progression of HIV infection to disease in symptomatic HIV persons. *The Lancet*.
- 1996 “Heterosexual transmission of HIV in Haiti.” Described the dramatic shift in HIV transmission in Haiti from blood transfusions and men who have sex with men to the general population. *Annals of Internal Medicine*.
- 2000 “Effect of post-treatment isoniazid on prevention of recurrent tuberculosis in HIV-1-infected individuals: a randomized trial.” Documented the high rate of tuberculosis recurrence after therapy in patients with AIDS and the value of post-treatment secondary prophylaxis. *The Lancet*.
- 2000 “Trimethoprim–sulfamethoxazole compared with ciprofloxacin for treatment and prophylaxis of *Isospora belli* and *Cyclospora cayetanensis* infection in HIV-infected patients.” Established ciprofloxacin as acceptable therapy for patients with cyclosporiasis and isosporiasis who cannot tolerate trimethoprim-sulfamethoxazole. *Annals of Internal Medicine*.
- 2002 “Comprehension during informed consent in a less-developed country.” Evaluated comprehension during the informed consent process and made recommendations for improvement in developing country settings. *The Lancet*.
- 2003 “Decreased congenital syphilis incidence in Haiti’s rural Artibonite Region following decentralized prenatal screening.” Described improved program for syphilis screening and treatment for pregnant women to prevent congenital syphilis. *The American Journal of Public Health*.
- 2005 “Antiretroviral therapy in a thousand patients with AIDS in Haiti.” Reported GHESKIO’s experience treating the first 1,000 AIDS patients with outcomes comparable to US clinics. *The New England Journal of Medicine*.

Major GHESKIO Research Projects

The Natural History of HIV Infection in Haiti (1985 – 2002)

The goal of this project is to define the natural history of HIV and its effects on the Haitian family. The project has led to developments in treatment strategies for coccidial diarrheal infections, tuberculosis prophylaxis in HIV infected adults, and voluntary HIV counseling and testing. Support was from a MERIT Award from the National Institutes of Health.

A Randomized Controlled Clinical Trial of Early vs. Late Antiretroviral Therapy for AIDS Patients (CIPRA) (2003 – 2008)

Research is focused on finding the optimal time to start antiretroviral therapy in patients with CD4 counts between 200 and 350 cells/ml. Funding is from the National Institutes of Health.

HIV Vaccine Trials Network (2001 – 2006)

GHESKIO is a member of this international collaboration of scientists and educators searching for an effective and safe HIV vaccine. Support is from the National Institutes of Health. GHESKIO Director Dr. Jean Pape is the Principle Investigator in the HIV Vaccine Trials Network in Haiti and GHESKIO investigators conduct clinical trials of promising new HIV vaccine candidates. GHESKIO researchers, the Haitian Ministry of Health, and the Haitian Medical Association worked together for ten years to prepare for the conduct of HIV vaccine trials in Haiti. Pictured below is the inaugural ceremony for the official launching of HIV vaccine trials in Haiti on March 27, 2001, when the first vaccination was administered. All of the Ministers of Health and Presidents of the Haitian Medical Association who contributed to the preparation of HIV vaccine trials in Haiti are present, including (front row from the left) former Minister of Health Dr. Daniel Henrys, former Minister of Health Dr. R. Malebranche, Co-Principle Investigator for the GHESKIO site Dr. M. Deschamps, President of the Haitian Medical Association Dr. G. Roy, former Minister of Health Dr. M. Gédéon, and Chief of Staff of the Ministry of Health and former President of the Haitian Medical Association Dr. C. Suréna. In the back row (from the left) are the General Director of the Ministry of Health Dr. E. Charles, Principle Investigator and GHESKIO Director Dr. J. Pape, and former Minister of Health Dr. Jean Molière.



AIDS Clinical Trials Group (2002 – 2006)

GHESKIO is a member of an international group of scientists dedicated to developing treatment strategies for HIV and related disorders. GHESKIO conducts clinical trials to evaluate the efficacy of an antiretroviral treatment for HIV infected individuals in resource limited countries. The collaboration is supported by the National Institutes of Health.

Evaluation of Rapid Syphilis Diagnostics for the Elimination of Congenital Syphilis in Haiti (2002 – 2004)

The goal of this project is to improve syphilis screening throughout the country to reduce deaths due to congenital syphilis. Support is from the United Nations Development Program, the World Bank, and the World Health Organization's Special Program for Research and Training in Tropical Disease.

Targeted Evaluation of AIDS Treatment in Haiti (2003 – 2006)

GHESKIO investigators conducted the largest study of treatment outcomes for AIDS patients in a developing country, following 1,000 AIDS patients receiving antiretroviral therapy. Research continues to evaluate the efficacy and feasibility of other AIDS prevention and treatment programs. The studies are funded by the Global Fund to Fight AIDS, Tuberculosis and Malaria and the President's Emergency Plan for AIDS Relief.

National Seroprevalence Studies (2003 – 2006)

The aim of the project is to conduct sentinel HIV surveillance across Haiti. GHESKIO conducts all HIV testing and was responsible for the training of study site lab personnel in sample collection. This nationwide project is supported by the US Centers for Disease Control and Prevention and the Haitian Ministry of Health.

AIDS Diarrhea and Antiretroviral Therapy (2004 – 2006)

The goal of this project is to determine the effect of tropical AIDS diarrhea on absorption of antiretroviral drugs, virologic response to therapy, and the development of HIV genomic drug resistance. GHESKIO investigators also seek to identify other co-factors that may relate to the response to antiretroviral therapy in AIDS patients with tropical diarrhea, including the etiologic agents of diarrhea, nutritional status, drug toxicity, and adherence. Support is from the National Institutes of Health.

Cost effectiveness of HIV Prevention and Care Services (2003 – 2006)

GHESKIO investigators are evaluating the cost-effectiveness of HIV prevention and care services to maximize efficiency and demonstrate the feasibility of treatment programs in developing countries. This research is funded by the National Institutes of Health.

TRAINING

Short-term Training

GHESKIO offers training to a broad array of Haitian health care workers and medical personnel, including medical students, housestaff, social workers, laboratory technicians, nurses, dentists, physicians, staff of the Haitian Red Cross, and investigators interested in research careers. GHESKIO trainees also include community and religious leaders, parents, teachers, and journalists. Short-term training (one week to six months) is offered to support clinical services and research activities at partner organizations in Haiti in support of the national efforts to scale up HIV/AIDS care and prevention services. For example, GHESKIO is the national center for training laboratory technicians how to conduct HIV serologic testing, and hundreds of laboratory technicians from across Haiti have trained at GHESKIO. GHESKIO developed national algorithms for the management of sexually transmitted infections and has trained thousands of clinicians in the syndromic management of sexually transmitted infections. In short, GHESKIO trainees can be found in any hospital or health clinic in Haiti where HIV services are offered.

Long-term Training

GHESKIO also recruits talented young Haitian investigators for long-term training in Haiti and abroad. Trainees focus on the priority research areas necessary for developing and expanding HIV care and prevention services: HIV vaccines, pediatric and adult antiretroviral therapy, health outcomes of HIV care and prevention, pediatrics and the prevention of mother to child transmission, tuberculosis and other HIV-associated opportunistic infections, ethics, and pathogenesis, immunology, and virology. About 95% of these trainees remain in Haiti, and many stay at GHESKIO to continue their work. Some long-term Haitian trainees are highlighted below.

Profiles of Exemplary Long-term Haitian Trainees



Patrice Severe, MD graduated from the State University of Haiti Medical School and then trained in internal medicine. He began training at GHESKIO in 1999. Dr. Severe received training at the Weill Cornell Medical College in the provision of antiretroviral therapy and led efforts to provide antiretroviral therapy for HIV patients in Haiti. Dr. Severe is currently a Senior Investigator in the AIDS Clinical Trials Group, Director of the Antiretroviral Therapy Clinic at GHESKIO, and Project Director of a clinical trial to determine the optimal start time for antiretroviral therapy. Dr. Severe was recently the first author on a paper in *The New England Journal of Medicine* describing antiretroviral therapy for AIDS patients in Haiti.



Patrice Joseph, MD graduated from the State University of Haiti Medical School and then trained in internal medicine. Dr. Joseph has also received training at Vanderbilt University, where he is currently completing a masters program in clinical trials. Dr. Joseph is the Project Director of a phase II trial of the MERCK HIV vaccine enrolling 350 patients in Haiti. He was recently the first author on a publication in *The Journal of Acquired Immune Deficiency Syndromes* on improving the informed consent process for HIV vaccine trials conducted in developing countries.



Patricia de Matteis, MT is a graduate of Haiti's national school for laboratory technicians, the Institute of Paramedical Studies (ISECAP). She also received training at Cornell and Venderbilt Universities in PCR diagnostics. Mrs. Matteis is currently responsible for performing HIV-1 RNA viral loads and genomic drug resistance testing at the GHESKIO Institute of Infectious Diseases and Reproductive Health.



Francine Noel, MD, MS graduated from the State University of Haiti School of Medicine and Pharmacy. She received a Masters Degree in Clinical Investigation at Vanderbilt University and is currently a GHESKIO pediatrician and investigator. Dr. Noel received the Elizabeth Glaser Pediatric AIDS Foundation International Leadership Award to support her research at GHESKIO on mother to child transmission of HIV and the development of guidelines to improve the treatment of opportunistic infections in HIV-infected children in Haiti.



Carole Ann Beauharnais, MD is a graduate of the University of Notre Dame of Haiti, where she received the award of excellence for seven years and developed interests in biotechnology and clinical research. As a Clinical Research Assistant at GHESKIO, she has received training in chloroquine resistance testing at Cornell University and training in rapid tests for infectious diseases at the bioMérieux Laboratories in France. At GHESKIO, Dr. Beauharnais is responsible for the PCR laboratory and testing for the prevention of mother to child transmission program.

Training for US Students and Physicians

GHESKIO hosts US undergraduate, graduate, and medical students and postdoctoral fellows for research training. Students are assigned a Haitian mentor and perform behavioral, clinical, public health, or laboratory-based research. Past trainees have published research articles in *The New England Journal of Medicine*, *The American Journal of Public Health*, and *Clinical Infectious Diseases* and presented their research at international conferences.

Profiles of Exemplary US Trainees



Daniel Fitzgerald, MD graduated from the Yale University School of Medicine and trained in internal medicine at Massachusetts General Hospital. Dr. Fitzgerald received fellowship training under the mentorship of Dr. Pape at the GHESKIO center from 1998-2001. He is the recipient of an International Research Scientist Development Award from Fogarty International Center (NIH K award). Dr. Fitzgerald is currently an Assistant Professor of Medicine at the Weill Medical College of Cornell University and continues collaborations with GHESKIO.



Macarthur Charles, MD, PhD graduated from Brooklyn College and received an MD and PhD from the Albert Einstein College of Medicine. Dr. Charles trained in internal medicine and infectious diseases at the Weill Medical College of Cornell University and is currently conducting fellowship research on HIV drug resistance at GHESKIO under the mentorship of Dr. Pape. His research is supported by an NIH T32 training grant.



Serena Koenig, MD trained in internal medicine at Brigham and Women's Hospital in Boston. She worked as a clinician in rural Haiti with Partners in Health in 2003 and is currently an infectious disease fellow at Harvard University. Dr. Koenig received an International Research Scientist Development Award from the Fogarty International Center (NIH K award) to conduct her fellowship research at the GHESKIO center. Her research area of interest is cost-effective analysis of the national antiretroviral therapy program.



Robert Peck, MD studied the impact of integrating patient services into voluntary counseling and testing at GHESKIO as a medical student at Vanderbilt University. His research was published in the Journal of Acquired Immune Deficiency Syndromes and Dr. Peck is the first author. Dr. Peck is now finishing his residency at Massachusetts General Hospital and upon completion has secured a position to work as a clinician and medical educator in Africa.



Russell Horwitz is an MD PhD candidate at the University of Illinois. He received a Fogarty-Ellison fellowship to conduct clinical research in Haiti for one year. Mr. Horwitz completed his PhD thesis research during this time on ethical issues surrounding informed consent for HIV vaccine trials in Haiti. He is planning to enter residency in medicine and psychiatry.

Major GHESKIO Training Programs

AIDS International Training and Research Program (1988-2008)

GHESKIO is currently in the 18th year of this program. Funding is from the Fogarty International Center, and GHESKIO's support was competitively renewed in 2003. Since 1988, GHESKIO has mentored more than fifty Haitian long-term trainees. The initial focus of the grant was to provide short-term, high-impact training in epidemiology and laboratory techniques to rapidly characterize the epidemiology of HIV. Over time, as the AIDS epidemic matured and the needs of our collaborators change, the focus has been on long-term training with an emphasis on interventions for both treatment and prevention of HIV and AIDS associated co-infections.

The bioMérieux Foundation Laboratory Training Program (2001 – 2006)

The Fondation Rodolphe Mérieux was established in the memory of Rodolphe Mérieux, who died tragically in the 1996 TWA Flight 800 accident. The French foundation has been an important supporter of GHESKIO's service, research, and training agenda for the past five years. The focus has been on strengthening GHESKIO's laboratory capacity through the purchase of laboratory equipment and support for a full time laboratory specialist from Europe to live in Haiti and provide training to local laboratory staff.

The International Training and Education Center on HIV (I-TECH) (2003 – 2006)

With support from the U.S. President's Emergency Plan for AIDS Relief, I-TECH leads a consortium of international and domestic partners with expertise in diverse areas of HIV/AIDS planning, clinical care, training and support. I-TECH seeks to serve both as a conduit of state-of-the-art, resource-appropriate clinical expertise and a partner in the development and evolution of self-sustaining training systems to advance the scope and quality of HIV/AIDS care and support. I-TECH is working in collaboration with multiple partners to support the Caribbean HIV/AIDS Regional Training (CHART) Network to reach its goal of increasing human capacity in the Caribbean region for care and support to persons infected with and affected by HIV/AIDS. The I-TECH program supports clinical and laboratory faculty members from Cornell University to work in Haiti.

International Clinical, Operational, and Health Service Research Training Program (2004 – 2009)

The goal of this training program is to increase capacity in integrated clinical, operational, and health services research in support of Haiti's national scale-up of HIV prevention and care services. Support is from the Fogarty International Center. GHESKIO, in collaboration with Haitian and international partners, will develop short and long term training curriculum in clinical, operational, and health services research methodology. A Masters in Public Health Program offered in Haiti in collaboration with Quisqueya University will be the culmination of this curriculum development.

COLLABORATIONS

National and Local Collaborations

GHESKIO works in partnership with the Haitian Ministry of Health. The center is housed in government buildings and in turn provides technical advice to the Ministry of Health on HIV/AIDS, tuberculosis, and sexually transmitted infections. Major initiatives of GHESKIO's partnership with the Haitian Ministry of Health include support for the Haitian Red Cross in maintaining blood safety, evaluation of HIV vaccine candidates, training for health care practitioners throughout the country in the treatment of sexually transmitted infections, and the development of the Haitian HIV Care and Prevention Network.

GHESKIO also works in partnership with the Haitian Medical Association. The first GHESKIO meeting was held at the offices of the Haitian Medical Association in 1982. Since then, GHESKIO has collaborated with the Haitian Medical Association on many research and training projects.

Engagement with the local community is an essential part of the GHESKIO mission. In 1998, GHESKIO established a Community Advisory Board (CAB). The CAB is made up of community members of various professions and includes people living with AIDS as well as participants in past clinical trials. The CAB provides consultation during research protocol development, patient advocacy, community education, and community feedback to GHESKIO staff. GHESKIO provides logistical, financial, and educational support to the CAB.

Regional Collaborations

AIDS in the Caribbean is a regional epidemic with large amounts of migration of HIV high risk groups between countries. The Caribbean is in need of a regional response to the epidemic, and GHESKIO is building regional ties in order to create a united front. GHESKIO is one of the Centers for Disease Control's five Caribbean comprehensive HIV care training sites. Each site is responsible for providing practical training in the provision of HIV care and antiretroviral therapy to clinicians from the Caribbean. GHESKIO Director Dr. Jean Pape, the Haitian Ministry of Health, and counterparts from other Caribbean nations have formed a combined research council to define a common HIV research agenda, the Trans-Caribbean Research Network

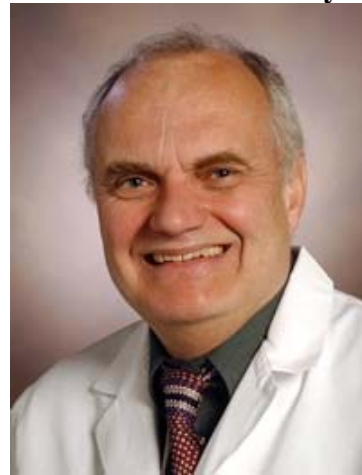
International Collaborations

GHESKIO has collaborated with Cornell University since its inception. Drs. Warren Johnson and Daniel Fitzgerald are the principle collaborators for Cornell and GHESKIO Director Dr. Jean Pape is a Professor at Cornell. GHESKIO has also collaborated with Vanderbilt University for ten years, and Dr. Peter Wright is the principal collaborator for Vanderbilt. Other research and training collaborators include Harvard University, the University of California at Berkely, Meharry Medical College, Johns Hopkins University, the Pasteur Institute of Paris, the New York City Department of Health, the Hastings Center, and the Aaron Diamond AIDS Research Center.

**Dr. Warren Johnson
Cornell University**



**Dr. Peter Wright
Vanderbilt University**

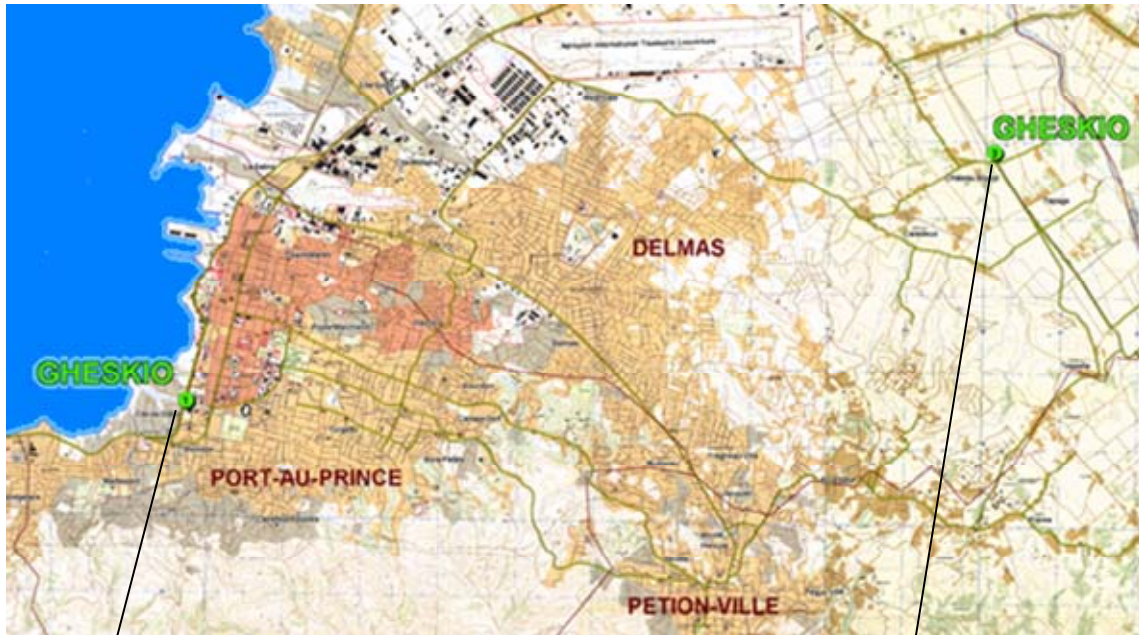


GHESKIO's mission of service, research, and training is supported by many international organizations, including the United States President's Emergency Plan for AIDS Relief, the United Nations Global Fund Against AIDS, Tuberculosis, and Malaria, the National Institute of Allergy and Infectious Diseases, the Fogarty International Center, the bioMérieux Foundation, the French Cooperation, UNICEF, the World Health Organization, and the United States Centers for Disease Control and Prevention.

FACILITIES

GHESKIO is housed in two campuses, including a three acre campus in downtown Port-Au-Prince and a new Institute of Infectious Diseases and Reproductive Health (IMIS) on eight acres of land on the northern side of town, near the airport.

Port-Au-Prince, Haiti



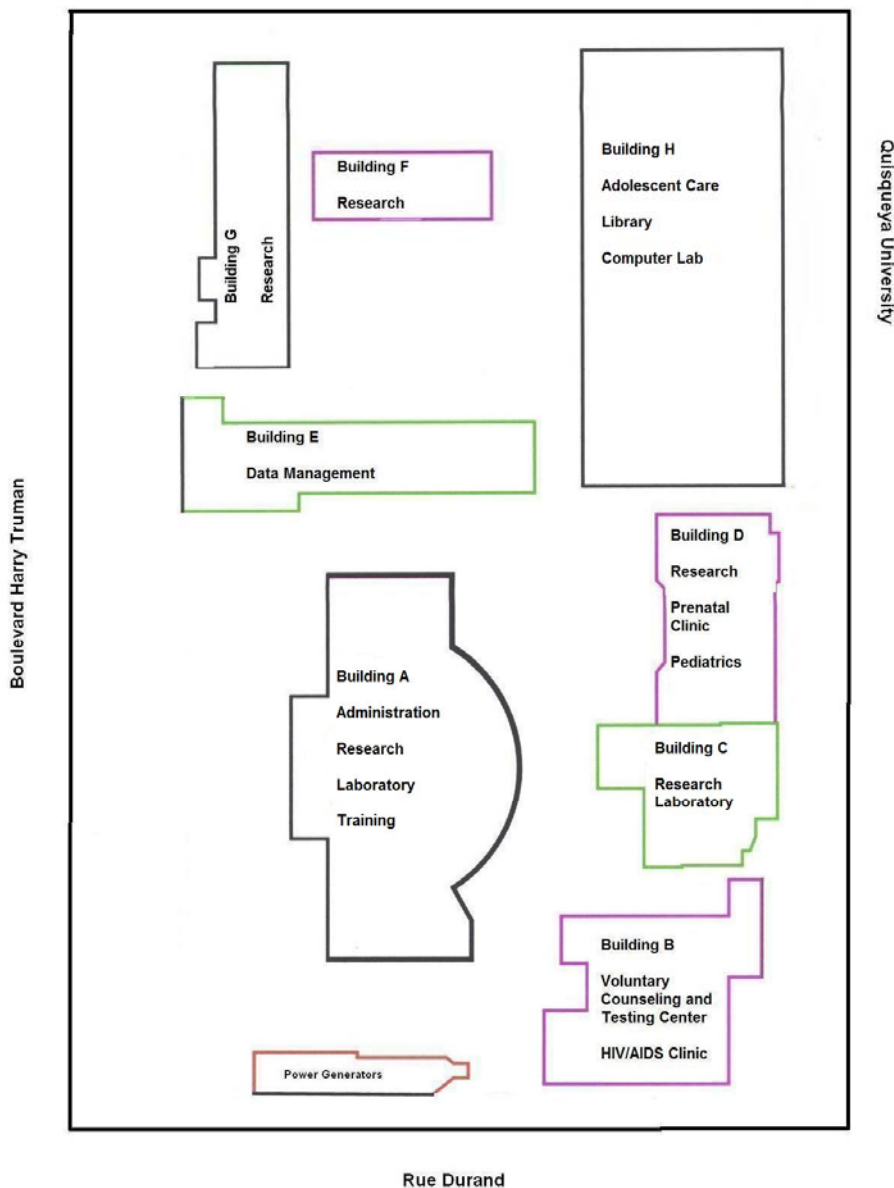
Downtown
Campus

Institute of Infectious Diseases
and Reproductive Health

The GHESKIO Downtown Campus

Research, training, and patient care in the downtown campus are housed in eight buildings with an area of 50,000 square feet. Support from the international donor community, including the United States, France, Japan, Canada, Norway, and the Netherlands has helped this GHESKIO center expand from its original size of about 10,000 square feet. This has allowed the creation of separate areas for routine patient care and for volunteers enrolled in clinical studies. The research areas are all within fifty meters of the service laboratory and administrative buildings and the clinical building. Routine HIV counseling and testing services are provided in the clinical building.

Site Plan of the GHESKIO Downtown Campus



The GHESKIO Institute of Infectious Diseases and Reproductive Health

The GHESKIO Institute of Infectious Diseases and Reproductive Health will double the space available at GHESKIO center for research, training, and clinical services.

Construction has begun with support from the United States Agency for International Development and the French Cooperation.

Plans for the Institute of Infectious Diseases and Reproductive Health

