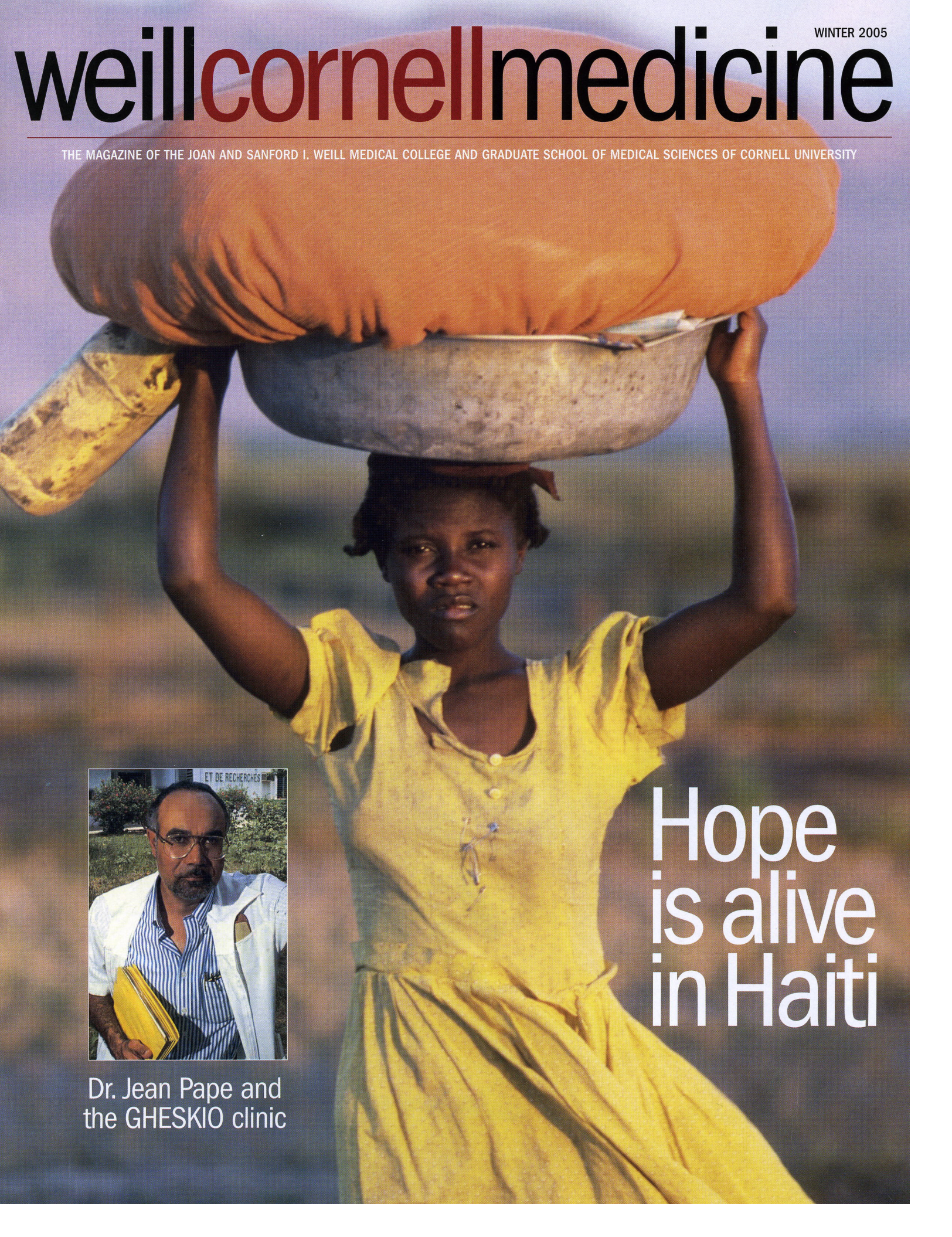
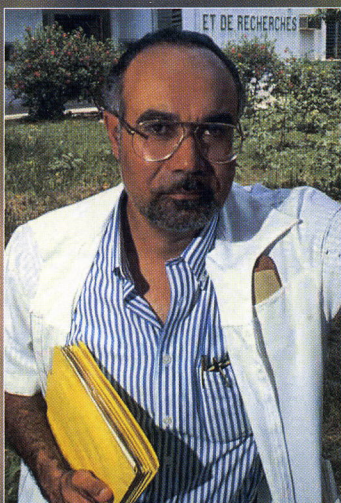


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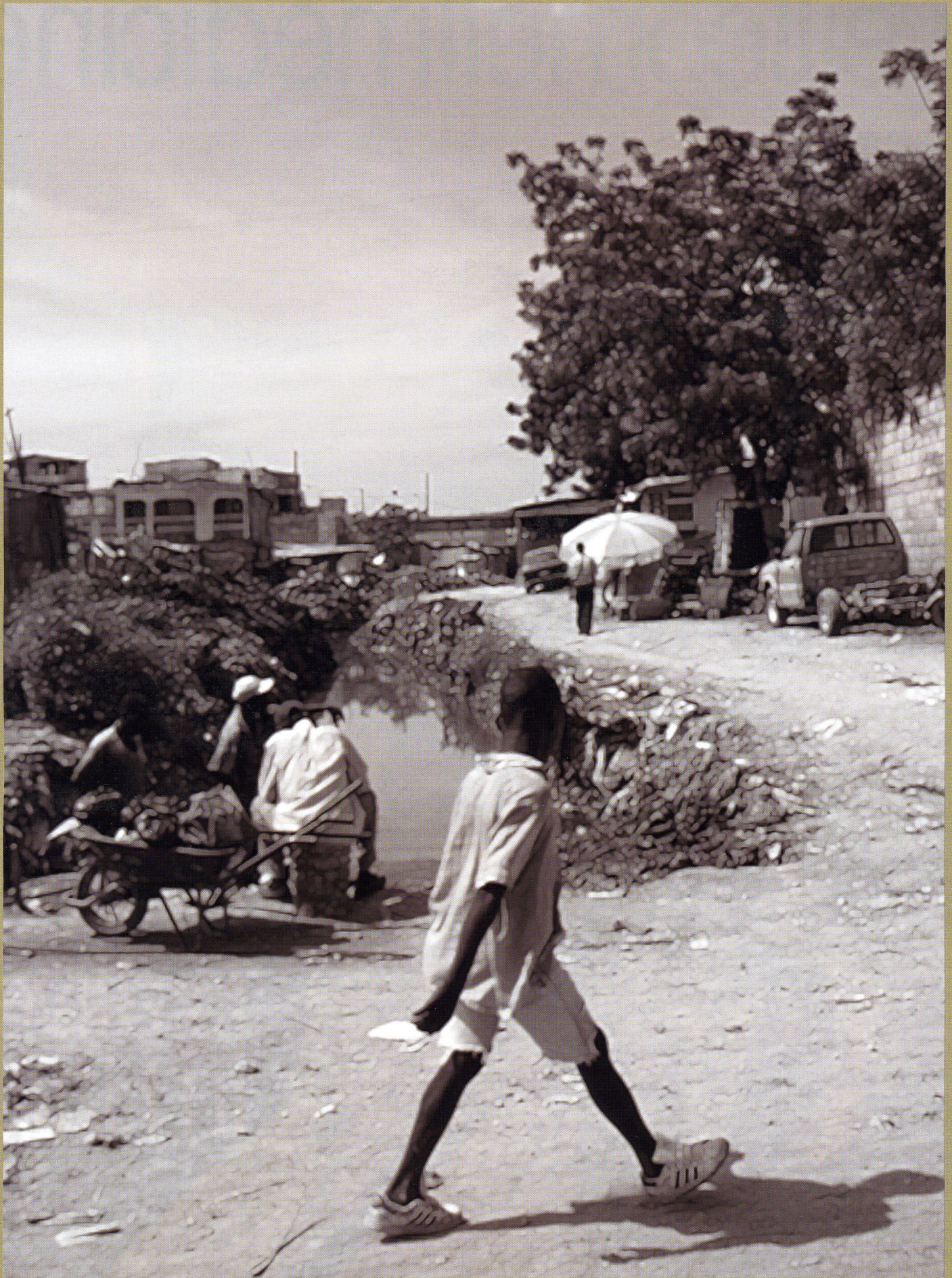
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## Hope is alive in Haiti



Dr. Jean Pape and  
the GHESKIO clinic



# hope is alive

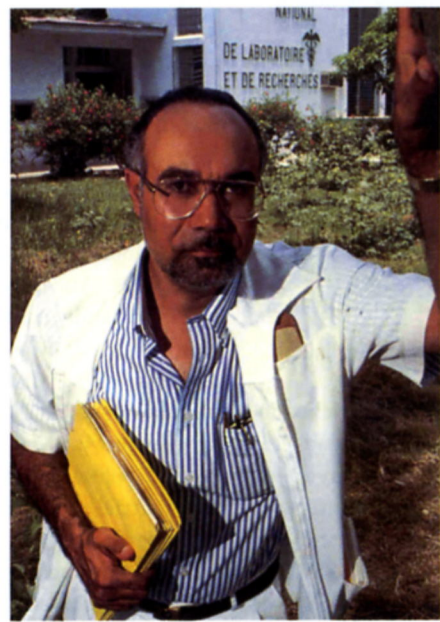
A small clinic gets big results in the fight against AIDS—in the poorest country in the Western Hemisphere.

by andrea crawford

**t**he medical center stands in a slum of Port-au-Prince, on landfill reclaimed from the bay. As you approach on Harry Truman Boulevard, the roads, decently paved in other parts of the city, begin to get bumpy. Cab drivers have been known to refuse to take American doctors there: no one should go after dark, they say. Outside its walls, vendors sell everything from beverages in beat-up coolers to charcoal and scrap metal. Dogs dig through heaps of trash.

Inside the compound—its gate open and unguarded—the scene is bright and bustling. The three buildings of GHESKIO (*Groupe Haitien d'Etudes du Sarcome de Kaposi et des Infections Opportunistes*) are made of concrete and fronted with wide-open entrances, standard architecture in the tropics. One houses the cramped quarters of the clinic's administration; another, the testing and counseling center, pharmacies, laboratories, and tuberculosis clinic; a third is home to laboratories as well as the clinic for pediatric and adult ambulatory care. All treatment is free, provided to whomever needs it. Patients come and go; they wait where they can, sitting on ledges and steps around the buildings. Children run around, many little girls dressed in ruffled finery. Their attire, which looks out of place amid the stark surroundings, testifies to the importance these patients place upon a visit to GHESKIO's doctors.

A decade ago, when experts were modeling projections for the rate of HIV infection in Haiti, the numbers were dire: by 2004, they predicted, the rate could be 15, 20, even as high as 30 percent. However, the seroprevalence has actually decreased from 6.2 percent to 3.1 percent even in the midst of an incredibly unstable political and social situation. This progress in the poorest country in the Western Hemisphere is no less than astounding. For the rest of



COURTESY OF GHESKIO

Dr. Jean Pape (above) directs the GHESKIO clinic in Port-au-Prince, Haiti.

the developing world, now facing similar projections, it offers powerful lessons.

Much of Haiti's success in slowing the epidemic has been attributed to Jean W. Pape, MD '75, director of GHESKIO and professor of medicine at Weill Cornell, and his longtime collaborator, Dr. Warren Johnson, B.H. Kean Professor of Tropical Medicine and chief of International Medicine and Infectious Diseases. In 2002, France gave Dr. Pape the Legion d'Honneur, its highest award. A year later, President George W. Bush singled out Dr. Pape and cited GHESKIO during the announcement of the \$15 billion President's Emergency Plan for AIDS Relief (PEPFAR).

But such honors tell only a small part of the story. Through the long-term collaboration with Cornell, Dr. Pape has created a center analogous to a U.S. teaching hospital: one where the highest quality of research is conducted, where professionals are trained in the latest methods, and where doctors stay sharp by working on the front lines of clinical care. "The beauty of the work we do," Dr. Pape says, "is that we're able to do the research and implement the results."

The tripartite model of research, training, and service—proven to be a powerful engine for advancing health care in the United States—is benefiting Haiti in the same way, says Dr. Daniel Fitzgerald, an assistant professor of medicine at Weill Cornell, who has worked in Haiti for seven years. "There are health problems and infectious diseases that disproportionately affect poor people in poor countries," he says, "so finding the solutions in that context is a better idea than trying to import some solution that's not adapted to that socioeconomic environment." Dr. Johnson puts it this way: "When you're working in a country that is virtually lacking in infrastructure at the highest levels, you don't have the luxury of just doing one of the three."

In 1979, Dr. Pape was working in Dr. Johnson's lab at Cornell when the political climate in Haiti improved, prompting him to return to his native country to conduct research on typhoid fever. He'd left ten years earlier to attend college in the United States; he was shocked by what he found when he came home. The mortality rate for infant diarrhea, for example, was over 44 percent. "It was horrible. Kids were

**'The beauty of the work we do,' Dr. Pape says, 'is that we're able to do the research and implement the results.'**

dying one after another," Dr. Pape says. He tells of the man who came to the hospital to retrieve the bodies; he would wait after one child died, knowing that within a few hours there would be more. "And he had a big bag," he recalls. "This was horrible. The first week I wasn't sure I was going to be able to stay, it was so bad." But Dr. Pape remained, and his impact was immediate. By introducing oral rehydration therapy and measures to treat such associated dis-

the United States and Canada and hold U.S. green cards. They provide enormous optimism for patients and researchers alike. Says Dr. Johnson: "So long as you have people who have the option to leave but persist, then hope is alive."

The staff works in close collaboration with fellows and other researchers from Weill Cornell and other U.S. institutions. In 2004 they recorded 130,000 patient visits, screened 25,000 people for HIV, treated

500 patients for active tuberculosis, and 5,800 patients for syphilis, chlamydia, and gonorrhea. Since 1992, they have trained 7,000 people, including doctors, nurses, social workers, and lab technicians at twenty-five sites around Haiti. They have recently helped create twelve centers of excellence throughout the country that, in turn, will operate five to ten peripheral sites in rural areas. And last year, they successfully concluded their first AIDS vaccine trial, the first that was



Street scene: Vendors offer their wares outside the clinic.

eases as meningitis, malaria, and typhoid fever, he lowered the mortality rate to less than 1 percent within the first year.

But a more ominous threat loomed. Soon Dr. Pape began to see adult patients with an unfamiliar wasting disease, and he and Dr. Johnson realized they were encountering the same strange illness that was then appearing in the U.S. as well. In 1982, with the help of several other doctors, they founded GHESKIO. It was only the second center in the world, after the one at the Centers for Disease Control, dedicated to the study of AIDS. The following year, in the *New England Journal of Medicine*, Dr. Pape and Dr. Johnson published the first complete description of how AIDS behaved in a developing country. Today, GHESKIO is staffed by 250 Haitians, many of whom have trained in

launched in the Caribbean—with 100 percent adherence, thereby proving that a center in an impoverished, politically unstable country can conduct a trial at the highest international standards. In 2004, GHESKIO launched a new vaccine trial, and this year will evaluate the efficacy of new vaccine products and conduct three therapeutic trials.

For clinicians and patients in resource-poor countries, after two decades of fighting AIDS, the past two years have been a watershed. In 2003, for the first time, patients with HIV began to have widespread access to antiretroviral (ARV) therapy, the standard drug cocktail of protease inhibitors that has been available in the rest of the world for more than a decade. Until that time, only about 100 patients at GHESKIO (and perhaps 100 more at the

rural clinic of Harvard physician Paul Farmer) had had access to the drugs, primarily through private donations that covered the \$10,000 per-year, per-patient treatment. But in 2003, pharmaceutical prices started dropping, generics became more readily available, and the Global Fund and Bush administration began dispersing money. The center in Port-au-Prince had 1,900 people on ARV therapy as of February 2005, including 300 children, and is adding about 100 patients per month. "We've been able to offer ARVs to anyone who comes to our clinic who needs them," says Dr. Fitzgerald.

Part of that treatment includes sessions with counselors who teach patients about drug therapy and general safety and hygiene, explaining the medications and the side effects, emphasizing the importance of drug adherence. Two of the counselors are themselves HIV-positive. They offer first-hand experience about taking the medications and, perhaps most important, visual proof that you can survive—and thrive—on the therapy. One of the counselors, Elizabeth Dumay, has been living with the virus for sixteen years and first came to Dr. Pape's clinic in 1988 when her father, and then her husband, contracted the virus. "If we had ARVs when my father and husband were sick, they would be living today," she says.

Now that treatment is available, the number of patients coming for HIV testing



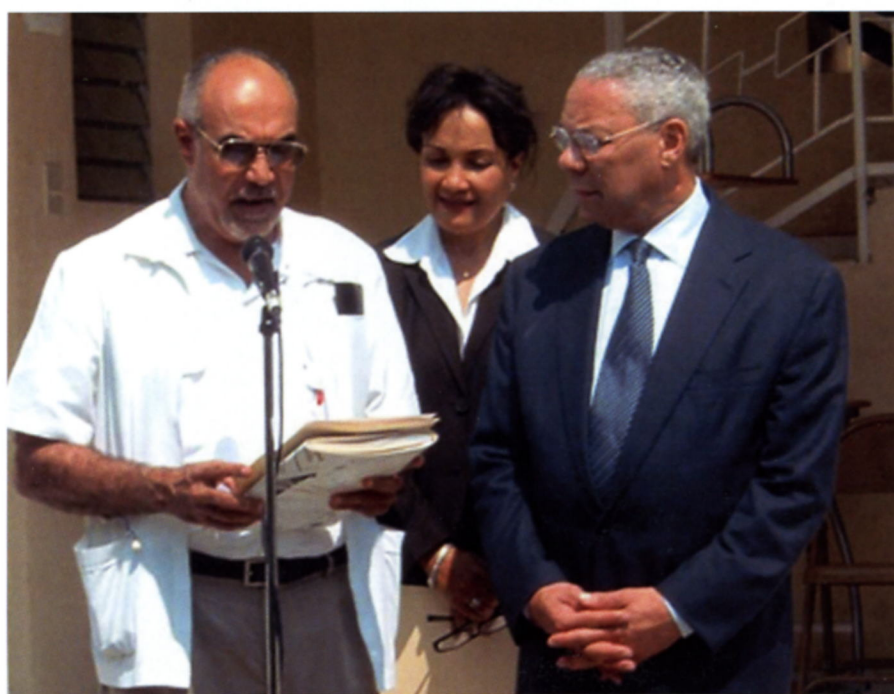
Waiting room: Dr. Pape's clinic has made a dramatic difference in the lives of thousands of patients.



Dr. Daniel Fitzgerald (left) and Dr. Warren Johnson

has increased, allowing the center to treat them for a host of other infectious diseases as well. In addition to the 400 patients who come each day for follow-up visits, about 150 new patients—the majority of them self-referred—come to be tested for HIV and sexually transmitted diseases. If patients are coughing, they are also evaluated for tuberculosis—and approximately one-third of them will have active TB. "The diseases we care for are transmitted among families," Dr. Pape says, so once an individual comes for treatment, his or her entire family is offered care.

These strides have been made in a particularly difficult year—with President Jean-Bertrand Aristide ousted in February 2004, growing violence since September, and some experts predicting more unrest ahead as elections approach. But Dr. Pape is quick to point out that Haiti has had eighteen governments in twenty years, and



State visit: Dr. Pape and Dr. Marie Marcelle Deschamps greet Colin Powell during his GHESKIO visit in 2004.

in that context, the last year hasn't been so exceptional. He also likes to tell visitors that throughout the worst of the violence, the clinic has had "not one pencil stolen." Forced to close for just two days, it doesn't even have an armed guard; its guardian, an elderly woman, is the widow of her predecessor, who died of cancer many years ago. "The population protects this place because it is their place, where they get free health care, the best type that you can provide," Dr. Pape says. While admitting that such staff dedication is not a cure-all, Dr. Fitzgerald believes that goodwill does purchase goodwill. "You can have all the guns in the world," he says, "and it wouldn't do you any good if the people don't trust you."

These stories yield lessons for other clinics and other countries. The first, by all accounts, is the importance of the people involved. "These programs live or die based on personal relationships," says Dr. Johnson. A second is the significance of mutually beneficial arrangements—that partners like Weill Cornell get as much out of it as they give. And finally, he says, you must be "well-informed politically, but don't get involved in politics." Dr. Johnson explains that they have always avoided pol-

itics and tried to be as transparent as possible. They made the decision early on, for example, that Dr. Pape would not accept any government position that paid a salary. Nor would he accept fees from patients. Once you've accepted fees from a patient, Dr. Johnson explains, you have become that person's personal physician and have assumed "a different level of responsibility," one that wouldn't necessarily accommodate Dr. Pape's commitment to the clinic and the cause of fighting AIDS.

But, in the end, a large part of the clinic's success can be attributed to having someone like Dr. Pape in Haiti to identify and begin treating HIV from the beginning—and to persevere in the face of the disease. It's Dr. Pape's "longevity, his ability to function in this country when things have been so chaotic," that he admires most, says Dr. MacArthur Charles, a fellow at Weill Cornell.

In a wall far away from the main buildings of the clinic, an intricately patterned metal gate has just been installed. It leads into the neighboring compound of a medical college, 75 percent of which has just been purchased by GHESKIO—secured by private funding and a personal loan taken out by Drs. Pape and Marie-Marcelle Deschamps, who has worked at GHESKIO since 1983 and is Dr. Pape's closest assistant. Just a week before they begin moving

the administrative offices, the information technology department, and research facilities, Dr. Pape, with excitement, shows a visitor around. The space is sorely needed: the bright yellow hallway outside the offices of the three pediatricians, for example, has become a waiting room, with green wooden benches offering tight accommodations for the children and their relatives. The ramp leading to the counseling center accommodates a crowd of people overflowing from its waiting room, where every chair is filled. "The biggest problem that we have is that we have too many patients right now, so we must expand," says Dr. Pape. In addition to the adjacent site, GHESKIO has planned a second clinic in Port-au-Prince, in the northern part of the city, near the international airport.

The challenge now is to spread care throughout the country, so GHESKIO is directing more and more of its efforts into working with existing health-care centers, hospitals, and clinics to layer on ARV therapy. Dr. Alysa Krain, a Weill Cornell instructor, is in charge of this training. She heads six mobile groups—each made up of a physician, nurse, lab technician, and pharmacist—that spend half their time visiting sites around the country, training staff to administer the therapy and treat patients with HIV. Says Dr. Pape: "By 2009, we hope to have at least 100 sites capable of providing ARVs and 500 sites capable of providing HIV testing, syphilis testing, and treatment around Haiti." Another goal—developing a rapid test for syphilis—is also within reach. "The idea was to have a simple test that can be done on whole blood so you don't need a centrifuge, it doesn't need to be refrigerated, and somebody with very little technical capacity can do it," Dr. Pape says. It is a unique opportunity to control syphilis, since all patients, including pregnant women, are tested for both HIV and syphilis.

Dr. Pape is eager to link the centers of excellence he and his staff are helping to establish around the country with U.S. academic centers, in a model of Cornell's collaboration with GHESKIO. "I'm looking beyond President Bush's PEPFAR project," Dr. Pape says. "What will happen? If we don't give them a strong research background and strong cooperation with other sites, those sites will not survive."

Dr. Fitzgerald breaks his work in Haiti into three goals: short-, medium-, and

# the search for a cure

At the GHESKIO clinic, the advent of widespread antiretroviral therapy has opened up possibilities for research as well as treatment, and the first two therapeutic trials are planned for this year. One, a multinational study led in Haiti by Dr. Paul Leger of the Adult AIDS Clinical Trial Group (AACTG) and being done at eight sites, will look at the best first-line therapy regimen: researchers hope to establish a once-a-day treatment plan that would be just as good as one requiring two or three doses

a day. Not only would that be simpler for patients, but it would allow for direct observation of therapy by medical personnel as well—the best-case scenario for adherence.

The second study, directed by Dr. Patrice Severe and enrolling 500 patients, will consider the best time to initiate ARV therapy. If a patient's CD4 cell count is less than 200, there is consensus in the medical world that patients should begin therapy. Likewise, doctors and scientists agree that if the CD4 cell count is more than 350 and a patient is asymptomatic, he will not benefit much from therapy. But then there's the gray area, people who have a CD4 cell count between 200 and 350, for which there's no consensus about the best time to begin treatment. Determining that threshold, says co-investigator Dr. Daniel Fitzgerald, "is more urgent in developing countries where you're choosing who starts first, when resources are limited and you want to save as many people as possible, where we're talking millions of people potentially on therapy."

Weill Cornell fellow Dr. MacArthur Charles will be spending the next few years at GHESKIO documenting primary resistance to HIV in Haiti, determining what kind of virus is in the population and how it evolves over time to the pressure of medication. "We're not at the point where we are in the U.S.," Dr. Charles says, "but we're going to get there." Indeed, doctors at the clinic have begun to see some resistance in patients to the ARV therapy.

Another Weill Cornell fellow, Dr. Erik George, in collaboration with Dr. Francine Noel, is studying the causes of early death in infants born to women who are HIV positive, including the occurrence of tuberculosis in very young infants, some infected with HIV, some not. Before AZT or other protease inhibitors were available, about 30 percent of infants were infected if their mother had the virus; today, the maternal-to-infant transmission rate is down to approximately 10 percent.

But the ultimate weapon in the battle against AIDS is, of course, a vaccine. "Since 1991, GHESKIO has built the capacity to conduct HIV vaccine trials," says Dr. Patrice Joseph, who has been running the project with Dr. Sonia Jean. "It's a very sensitive subject worldwide, and you have to have community support, you need to have political support, you need to define the right population."

Today, about thirty so-called "vaccine candidates" are in trials around the world. GHESKIO's first trial was small, involving about 40 patients to test safety and immune response—not to determine efficacy. "That's the purpose of your first study," says Dr. Fitzgerald. "Can you do it? Can you do it at a



COURTESY OF MACARTHUR CHARLES

Dr. MacArthur Charles

very high level? And can it be done safely?" From Haiti's perspective, he says, the trial was an enormous success: "They were able to conduct it at the highest international standards of clinical research, they had 100 percent adherence to protocol, 100 percent of volunteers showed up for every visit, and the vaccine was safe."

To ensure participation, the clinic takes special measures. In Haiti, for example, most people do not have permanent addresses, so the clinic uses field workers to check up on any of its patients that miss appointments. These field workers are particularly important to the trials. Before scheduled visits, for example, they go to participants' homes to remind them to come. The staff also gives out prepaid phone cards for calling the clinic, and a year-long calendar of scheduled visits.

The completed trial was conducted on low-risk individuals; this is also true of the second trial, which started in 2004. The third vaccine trial, however, will test a high-risk population. To prepare for it, the researchers are currently conducting a yearlong prospective study to determine if they have the capacity to recruit and retain people at high risk for infection. At the halfway mark, they had 98 percent retention. "We try to standardize the things that we do in research," Dr. Joseph says, "but for high-risk participants, we try to have them come on the date that is good for them. We can try to negotiate what time of day is good, and then increase staff so when they come they don't have to wait too much."

long-term. His short-term goal is therapeutics, trying to get treatment to as many people as they can. "We're trying to keep a generation alive and prevent the socioeconomic disasters that would follow if all

those people died," he says. "That's a one-by-one process. Every one you can save—that's another family, another person, another mom, another dad." The medium-term goal is finding an effective preven-

tion, most likely an HIV vaccine. "And then the long-term goal would be to put myself out of business when we vaccinate everyone," Dr. Fitzgerald concludes, "and there's no more AIDS." ■



Dr. Alysa Krain and Marie Andrée Georges, RN of the GHESKIO mobile training team in Cayes, Haiti



The HIV Vaccine Trials team



Madame Fortilus, GHESKIO administrator



The Antiretroviral Treatment team



The GHESKIO training team



Sunrise in Artibonite Valley

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