The Doctor and the Favela
One U.Va. physician's fight against the diseases of poverty

A verhead, a homemade kite soars above a squatter. Below, children are laughing, running across a field littered with trash. Nearby, a tall, slim, white-haired doctor is standing before a heap of crushed orange tile and concrete rubble. He was hoping to locate the family that lived here when this was a house. He and his colleagues, a U.Va. medical student and a local nurse, are surrounded by children who have tagged along, as they do whenever visitors enter their neighborhood. One barefoot boy is able to confirm that the family did indeed live at that place, but he does not know where they moved.

Years ago, the family had participated in a health study conducted by this man, Dr. Richard Guernant (Med '86), director of U.Va.'s Center for Global Health. That study has outlined the shattered house the family once called home. Guernant is surveying hundreds of older kids and young adults who were sick with diarrheaa as children. He is trying to determine the long-term effects of the disease.

The children live in a favela—an overpopulated slum—in Fortaleza, a city on Brazil's developing northeast coast. Guernant has been treating and studying sick children here since 1976. When he started, the tallest building in the city was a seven-story beach hotel. Today, the city of 2.6 million has hundreds of high-rise hotels and apartments and office buildings. But beneath these shiny buildings lay the shantytowns that house the more than 500,000 desperately poor people who have been bypassed by modernization. The poor here are concentrated in sprawling neighborhoods of cheaply constructed bowels. Most have come to the city from the rural interior looking for jobs, putting stress on an urban infrastructure unprepared to handle such a large and rapidly growing population. They migrate en masse during extended drought periods, and the droughts are occurring now.

Brazil is a country in transition. Good health and prosperity have come to many of its citizens, but about 6.5 million live without clean drinking water and flush toilets. Open sewers stream through the alleysways and streets of the poorest neighborhoods. Because of high unemployment, the favela is sometimes a dangerous place, with drug and alcohol problems, drug dealing and violence. But there is love: mothers hugging children, children hugging each other, close friends helping out where they can. They take pleasure from simple things: a meal, a hand-me-down dress or toy, a homemade kite of twigs and scraps of paper or plastic, a wild bunny as a pet. Adults and children flush the thumbs-up sign so often it seems as if nothing is wrong here, even as they stand barefoot on dirt streets in threadbare clothes.

Studies show that three out of four children in the favelas suffer from repeating bouts of debilitating diarrhea during their first two years—the very period when their children's minds and bodies are undergoing the most rapid and crucial developmental period of their lives. Some of these children die. Guernant's investigations of the survivors—conducted in close collaboration with his colleagues at Brazil's Federal University of Ceara—show that a sick child of seven may be eight percent smaller than peers who were not routinely sick as very young children. And a young adult who was chronically sick with diarrhea as a child may have lost about 10 kg points, the equivalent of a lost school year.

"Some people in the developed world may not think this matters very much," Guernant says. "But when disease takes a slice of life and intellect out of a segment of society, it ultimately affects us all."

Guernant's specialty is tropical medicine, the treatment of a large variety of infectious diseases—leishmania, dengue, yellow fever, typhoid, diphtheria and others—that originated in the tropics but can now be found the world over as human travel becomes increasing more global.

"Diseases of the poor can and do become diseases of the rich," he says. "Disease and poverty are whole-world problems uncontained by geographical borders."

Guernant's biggest concern is not the occasional diarrhea that most people in the developed world are familiar with, but rather the chronic, debilitating, terrible gut infections' that can hit a Third World child repeatedly during early childhood. Many of these children will be sick up to half of every month, and can lose up to 10 percent of their body weight. The child can be totally rehydrated with a sugar-water and salt concentration, but with each evacuation of the bowels, important micronutrients are flushed away rather than absorbed into the body. In a sense, the child's life drains down the sewers.

Empathy: The most important word in medicine
Guernant became concerned with the diseases of the poor when he was a medical student at U.Va. He got on a plane for the first time in 1967 and went to work at a mission hospital in the Congo. The experience changed his life forever.

"It was in Africa where I first learned that the most important word in medicine is empathy," he says.

He was shocked to see that so many people could be living every day in extreme poverty and misery. He realized that "perfectly preventable" infectious diseases caused most of these health problems. His purpose in life became clear: to ameliorate the diseases of the poor.

He didn't know it at the time, but the seeds were planted early for the global health center he would create. In the decades since, more than 150 U.Va. students and faculty have practiced medicine and conducted research in South America, Asia and Africa through Guernant's international health initiatives. The Center for Global Health, inaugurated in 2001, units and internationalizes U.Va. programs across the disciplines. Students from all fields are encouraged to develop creative uses of their talents for improving health worldwide. Guernant's scholars include students from nursing, architecture, engineering, law, business, environmental sciences, government and public policy.
Guerrant, Lima and their international team of colleagues are tracking hundreds of young children and adolescents in their studies and treating sick children with new vitamins-enhanced medicines developed in their labs. They are hoping that their research and development will help to prevent the spread of diarrheal disease and improve the quality of life for those affected.

Guanabara, Brazil—The center also brings international fellows to Brazil to work on their studies and treat patients. They once treat Guerrant’s offices and labs, they find an international commuity of scholars eager to join forces in a global battle against disease.

Remarkedly, all 65 of the international fellows who have come to U.Va. over the years have returned to their home countries to practice medicine, conduct research, and influence policy.

Any of these people could have found lucrative jobs in the U.S. and stayed here, “But they have instead agreed with our philosophy of reversing the brain drain by returning home and improving the health of their own communities.”

One of these former fellows is Dr. Aldo Lima, director of the Institute for Biomedicine at the Federal University of Goiás. Lima came to U.Va. 10 years ago while earning his M.D. and Ph.D. in pharmacology. A framed picture of U.Va.’s Rotunda hangs in his office in Fortaleza. Lima is Guarrant’s closest collaborator.

“He is like a brother to me,” Guerrant says.

The two men and their wives have watched their children grow and have spent family vacations together. They share a fondness for classical and Brazilian music, food, wine and travel and adventure, and an inexhaustible passion for solving the problems of poverty. Across the hemispheres they work on joint grant proposals, research papers and articles for journals and medical texts.

Eduardo de Souza

The answer to these problems, she knew, was to fix the infrastructure, to bring the children to the people and provide access to birth control, and educate the children. To do this, the government had to be able to reach the people, and the changes could be accomplished quickly, and all of them required the support of powerful leaders.

De Souza wrote a book about the favelas, graphically describing what she saw. She spent two years traveling from one slum to the next, and eventually in the Brazilian government—some of them made through Guerrant’s program’s support of health care for the poor, and understanding of health and the elderly, and the new leadership of the work.

While the changes began to come, "Agreement is the reason we are able to enter the favelas to do our work," Guerrant says. “Everyone there is her friend. We have a relationship by creating trust and understanding.”

Much has improved in the shantytowns of Brazil. The biggest changes came between 1994 and 2002 when Anastácio de Queiroz Sousa, one of U.Va. professor Michael Tinkhauser’s former students, served as secretary of health for the large state of Goiás, where Fortaleza is located.

But the process of building a case, Sousa worked closely with other government officials to improve the work conditions and health care in the favelas. When he first took office, only 50 percent of the people in Fortaleza’s shantytowns had access to clean drinking water or sanitation. Today, 70 percent have sewers and cleaner water.

As a result, the death rate in Brazil has dropped from 8 percent to 2.5 percent—from 80 children dying at birth per 1,000 live births in the United States to a considerably lower 0.6 percent in Brazil. Today, 70 percent of children who are born in Brazil are now born in states that have reduced their infant death rate to below the infant mortality rate for all of Brazil, which stands at about 34 deaths per 1,000.

In the past, people accepted infant mortality, Souza says, "but not today."

This mind-set change occurred at the higher levels of government, because researchers proved through years of high-quality data—much of it from Guerrant’s and Lima’s studies—that the costs of poverty were unacceptable to society as a whole.

"They say there are no solutions to see the problems in a scientific way," Souza says. This is "doing research where research is needed and doing research for the benefit of the people.”

Do the double and persevere

Ben Beers, a second-year U.Va. medical student, stands in a favela with a clip-board in hand, wiping sweat from his red face with the other. "The sun burns," he says. "You can feel that it's closer." Indeed, Fortaleza is only three and a half degrees below the equator, the sun scorches the city all year.

Beers is one of Guerrant’s scholars, here for the summer, helping gather health information about children who are part of the team’s long-term studies. He spends his mornings in the favelas visiting the women and children at their crowded little homes, conducting surveys, trying to keep strict watches where and if they're moved, how they can be found. In the afternoon, he's in the lab at the Institute of Biomedicine analyzing water taken from public fountains and homes in the favelas. Though many improvements have come to the neighborhood, he finds that E. coli and intestinal parasites still account for half of the drinking water.

Beers lives in the favela with the family of Sayonara Sozo Bizzerra de Alcanar, who has been working with Lima and Guerrant for more than 20 years. Beers has developed a close friendship with Alcanar, and in her neighborhood is a familiar sight—a tall, young American with a red ponytail and beard—walking with her and her children, joking with them, holding discussions, about their culture and language. Beers is fluent in Spanish, and Beers says that his best friend is the one who’s conversant on the job by living with this family.

"The first word to learn in Portuguese is obrigado—obliged," Beers says. "The people here are always giving you something.

"The favelas is naturally inclined toward a life of service. At 25—yes, younger than the average medical student—he says. "I'm a volunteer with the Peace Corps. I once worked for a year doing construction for Habitat for Humanity. He has taught elementary school and has worked as a ranger at Olympia National Park.

"I like working with communities and with people one on one," he says.

He wants to be a public health doctor, but his family is from an area like northwest Virginia, perhaps in an urban setting like Washington, D.C., his hometown. Beers is exactly the kind of compassionate medical student that Guerrant always seeks.

"My mission," Guerrant says, "is to tackle talent like Ben Beers and help him move in the direction toward which he is already inclined."

Beers learned the hard truth as a Peace Corps volunteer. In plagues, the world in which the poor lead their lives are not enough—on the roads of every town is the bed to where you have to have to do it right.

This ties in to what Guerrant is always telling his students and fellows: "You have to have to start somewhere. Figure out what you want to do, make a plan and make it happen."

Guer rant’s newest dream is to form an international network of global health centers modeled on the work done at U.Va. This would link universities in the United States with countries worldwide, sharing resources, in efforts to make global health the poor.

"It’s a dream that started, in effect, on a mission year ago by a young medical student in the Congo.

"Start doing the double and persevere."

It is this philosophy that created U.Va.’s Center for Global Health—an international network of centers where a home-made kite over a favela...