NEWS

UGANDA CANCER INSTITUTE

Former African Cancer Research Powerhouse Makes Plans for a Return to Greatness

By Liz Savage

A

top a hill in Uganda’s capital city of Kampala sit five dilapidated single-story buildings, which squat below corrugated iron roofs. From the road, a tattered wooden board that reads “Uganda Cancer Institute” (UCI) greets visitors from its perch on an electrical pole that sporadically powers one of the buildings. Inside, beneath crumbling ceilings, patients lying on metal cots, often without mattresses, are attended to by a team of nurses and one of the two cancer doctors in the country of more than 27 million people. While many of these patients have curable disease, most will go untreated because they cannot afford tests or therapy for their cancer.

The current state of the UCI is the result of decades of brutal dictators, civil war, economic crises, and the AIDS epidemic. But the grim surface veils its vibrant past as a leader in cancer research in Africa. Just in time to celebrate its 40th anniversary, UCI and its international collaborators have put forward big plans to return the cancer institute to its place at the top.

Along with a new organizational structure, the changes are designed to provide “a wider opportunity and ease of participation with the Institute in the spirit of collaboration,” said Jackson Orem, current director of UCI.

Early Days

The UCI first opened its doors in 1967, offering its 20 beds to children with lymphoma, usually Burkitt lymphoma—a disease that was endemic to equatorial Africa. The Lymphoma Treatment Centre, as it was then called, was dedicated to Denis Burkitt, an Irish surgeon who worked in Uganda in the 1950s. While Burkitt never worked at the institute, he was the first to describe the unusual childhood tumor that targets the jaw and abdomen.

He was also the first to discover that this particular cancer could be cured. Many of the children that he saw had tumors too large and spreading too rapidly to be removed surgically, so Burkitt decided to try chemotherapy instead. These drugs were usually given over 2 weeks, but keeping patients in the hospital that long was nearly impossible. So Burkitt gave the entire dose in one sitting.

“As luck would have it, these youngsters had a tremendously dramatic response. The tumors virtually melted away in days. And often their tumors didn’t come back,” said John Ziegler, M.D., the first director of UCI, now director of the cancer risk program at the University of California–San Francisco Comprehensive Cancer Center. “Nowadays, curing lymphomas and leukemias is pretty much commonplace, but in those days it was pretty remarkable.”

The discovery that one of Africa’s most common cancers was potentially curable caught the attention of lymphoma researchers throughout Africa and the rest of the world. The National Cancer Institute’s researchers also saw it as a good time to collaborate with their African colleagues to follow up on Burkitt’s discovery.

NCI and Makerere University, Uganda’s largest, agreed to open the lymphoma clinic in a few vacant buildings that had once housed the old Mulago hospital, the teaching hospital for the university’s medical school. (A new hospital was built as a parting gift from the British.) This location, separate from the main hospital, allowed patients at the institute to stay longer for treatment and observation. Such a luxury was unheard of in the main hospital, where the enormous pressure for beds forced patients out prematurely.

“We had a good situation, even compared to the hospital down below. They had a beautiful building to work in, but they weren’t so well off with drugs and equipment,” said Ian Magrath, D.Sc., a former director of the lymphoma treatment center and currently president and director of the International Network for Cancer Treatment Research.

For 10 years, NCI funding kept the cancer institute well stocked with drugs and basic medical equipment, including a portable x-ray machine. “We had access to only the simplest things like blood counts and blood smears. ... Clinical examination
was the major way we made diagnoses in those days. Nowadays, people have almost forgotten the art of examining a patient,” Magrath said.

Despite the limited resources, the Ugandan and NCI scientists conducted important research on Burkitt and other lymphomas. And in 1969, the institute expanded to 40 beds with the addition of the Solid Tumor Centre, where they treated and studied adult cancers like Kaposi sarcoma and liver cancer. The institute attracted students and fellows from Ugandan medical schools, as well as internationally. “The [UCI] really grew into a showcase for cancer treatment and research investigation in sub-Saharan Africa,” Ziegler said.

Troubled Times
In 1971, Idi Amin overthrew President Milton Obote in a military coup and named himself president for life. With his heavy-handed regime came a crumbling economy, political violence, and the death of hundreds of thousands of Ugandans.

“By 1972, while the institute was flourishing, the country was becoming more and more precarious,” Ziegler said. That year Amin ordered all the Asian Ugandans to leave the country, and soon, nearly all the NCI researchers and other expatriates decided that staying was getting too dangerous. “We could hear machine guns firing from our university housing” and would sometimes arrive at the institute to find bullet holes in the walls, Magrath said.

The sudden flight of the American and British researchers left the institute without a leader. Charles Olweny, M.D., who had worked at the institute while writing his dissertation on Hodgkin disease, was training at NCI when he was asked to come back early to Uganda. “They said that if I didn’t return I would find the place closed down with no one to hand it over to me,” said Olweny, who is currently vice chancellor at Uganda Martyrs University. Magrath stayed until Olweny could arrive.

Olweny returned home to a troubled Uganda. The expulsion of the Asians, who made up most of the middle-class business owners, wreaked havoc on the economy. “If you went out to a restaurant, for example, you would have to carry your money in a shoe box to pay for your meal because the currency devalued so much,” Ziegler said. Electricity and water were scarce. So were patients. People were terrified to travel from their local villages to the main city—Kampala was a ghost town, he said.

Despite political and economic turmoil, Olweny says the decade he spent as director of the UCI were his most productive years. Shortly after the NCI researchers left, the responsibility of funding the institute was turned over to the Ugandan government’s Ministry of Health. Although the economic problems stifled the funding of medical research, Olweny negotiated with the ministry to get a budget separate from the main hospital. “I would go to the Ministry of Finance and defend my budget. And once I was approved, I was free to use the money as I pleased—purchasing drugs, paying workers, buying new equipment,” he said.

For a while at least, it seemed that the institute was immune to the troubles of the rest of the country. “With Amin, if you did not step in his way, you were safe. He saw that the cancer institute was a showcase of how well things were running in the country, and he kept bringing guests over to the cancer institute to show them what we were doing,” Olweny said.

Under Olweny’s leadership, the Ugandan researchers were the first group to show that liver cancer could be successfully treated with chemotherapy using the drug doxorubicin, which is still used to treat liver cancer today. They confirmed Burkitt’s conclusion that Burkitt lymphoma could be cured with a high dose of chemotherapy and showed that the same was true for childhood Hodgkin disease. And they documented the incidence of endemic Kaposi sarcoma in children and then conducted clinical trials on how to treat it.

Meanwhile, former president Obote toppled Amin’s regime, which plunged the country into a brutal civil war that lasted several years. Olweny and his family were forced to flee the country because “word was out that his name was on a list that was not a good list,” Ziegler said.

Another former UCI student took his place—Edward Katongole-Mbidde, M.D. Although the special funding Olweny arranged dried up after he left, Mbidde was well connected politically and, like Olweny, could keep the institute up and running while the country was falling around them. “Even though the civil war had totally ravaged the country, everyone was reporting for work. There was still chemotherapy in the pharmacy. Patients were coming and getting treated. He just maintained an extraordinarily high standard of care in unbelievably adverse circumstances,” Ziegler said.

For many years, UCI was the major cancer center in the region, and as the AIDS epidemic broke out, the institute was among the first to take on AIDS-related cancers, many of which, like Kaposi sarcoma and Burkitt lymphoma, they had been studying for decades.

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The economic decline that had gripped the country for decades finally took hold of UCI after Mbidde left in the 1990s. Without Mbidde’s connections, the institute’s scant research dollars were funneled toward fighting AIDS. Cancer was classified by the health ministry as a non-communicable disease, a catch-all for low-priority diseases. The neglected institute had trouble attracting medical students and young researchers and could not afford to train new staff. They continued to see patients, but the strong research that had made the institute the jewel of the African cancer world stagnated as it struggled to maintain the most basic patient care.

Coming Full Circle

“It is true the Institute is grossly underfunded,” Orem said in an e-mail. He estimates that redeveloping and modernizing the institute, which is still in its original buildings, will take about $7 million. (The current annual budget of the institute is about $10,000.) Part of Orem’s plan to revive the institute involves collaborations with both national and international research teams, and several projects have already begun. UCI has attracted groups from Case Western Reserve University in Cleveland and Fred Hutchison Cancer Research Center in Seattle, among others, who are interested in studying AIDS-related cancers. These collaborators have pledged to help build up the infrastructure of the institute and provide training for Ugandan researchers.

Many of the research projects so far have focused on treatments that are suitable for resource-poor areas like Africa, where the toxic side effects of modern intensive chemotherapy regimens are difficult to manage. “For things to succeed, African researchers have to drive the agenda. We’re providing a vehicle, we’re providing some expertise, but the strategies and things that we’re doing really are things that they can do there and will be meaningful to them,” said Scot Remick, M.D., who was an AIDS malignancy researcher at Case Western. They won’t, for example, be doing studies on bone marrow transplants, but developing oral drug regimens that are easier to administer, as one group is doing, will improve access to cancer therapies.

In the search for simpler chemotherapy regimens, researchers don’t have to look far. “It’s interesting now because we’ve come full circle,” Magrath said. “Many African countries are using the same treatment regimens that we developed 30 years ago at the institute.”

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