A Push to Fight Cancer in the Developing World

Cancer and other chronic diseases have received little attention from global health advocates. That’s beginning to change

BOSTON—In one of his PowerPoint presentations, Lawrence Shulman has a series of photographs that are hard to forget. One shows Tushime, an 11-year-old girl in Rwanda suffering from rhabdomyosarcoma, a rare cancer of the muscles. A tumor resembling a cauliflower is growing out of her right cheek.

The good news comes in Shulman’s next three slides. Over a 10-week treatment course with drugs donated by a U.S. program, the mass started to shrink until eventually it could be removed surgically. The last picture shows Tushime, standing with her happy family and—despite a somewhat lopsided face—looking healthy.

Shulman is chief medical officer at the Dana-Farber Cancer Institute here, which is affiliated with Harvard Medical School (HMS), and to him the pictures carry a powerful message: Given that treatments are readily available, how can you not treat a child suffering from a very curable cancer?

It’s a message that is beginning to be heard. Global health has gained in prominence on political agendas in recent years, but attention has been overwhelmingly focused on infectious diseases. Now, some argue, it’s time to start closing an equally unconscionable gap between rich and poor nations in cancer prevention, diagnosis, and treatment.

The numbers speak volumes. A child suffering from leukemia in Western Europe has an 85% chance of survival; in the 25 poorest countries in the world, it’s just over 10%. For a man with testicular cancer, the numbers are about 95% and just over 40%. Estimates suggest that less than 5% of the world’s cancer resources are spent in the developing world. In many countries, even painkillers are hard or impossible to come by—“a violation of human rights,” Shulman says.

In a bid to change that, oncologists at topflight centers in the United States and Europe are now taking time out to help improve cancer care in low- and middle-income countries. In an article last month, World Health Organization Director-General Margaret Chan said that cancer needs to be “acknowledged as a vital part of the global health agenda.” Cancer will also feature on the agenda at the United Nations High-level Meeting on Non-Communicable Diseases in September in New York City.

Shulman and Harvard School of Public Health Dean Julio Frenk co-chair the new Global Task Force on Expanded Access to Cancer Care and Control in Developing Countries (GTF.CCC), which aims to move cancer up on the global priorities list. The group—which combines expertise in cancer, global health, economics, finance, and policy—published a 10-page call to action last year in The Lancet and is now working on a collection of papers for the same journal that details what needs to be done.

The obstacles are major, and some people question whether battling cancer is the wisest use of scarce global-health money. Similar doubts were once raised about infectious diseases, says HMS physician and GTF.CCC member Paul Farmer:

**THE CANCER SURVIVAL GAP**

<table>
<thead>
<tr>
<th>Disease</th>
<th>Ratio of mortality to incidence</th>
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<tbody>
<tr>
<td>Breast</td>
<td>Low</td>
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<tr>
<td>Prostate</td>
<td>Lower middle</td>
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<td>Colorectal</td>
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<td>Cervix uteri</td>
<td>High</td>
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<tr>
<td>Non-Hodgkin lymphoma</td>
<td>Testicular</td>
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<tr>
<td>Hodgkin lymphoma</td>
<td>Leukemia (0-14 years of age)</td>
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Life and death. For many cancers, the case fatality rate (of which the ratio of mortality to incidence is a proxy) is much higher in poor countries than in rich countries.

Prevention. Women wait to be screened for cervical cancer at a Partners In Health clinic in Rwanda.

Crusade at 40

CREDITS (TOP TO BOTTOM): COURTESY OF PARTNERS IN HEALTH; (GRAPH SOURCE) GTF.CCC, MEXICAN HEALTH FOUNDATION; ESTIMATES BASED ON IARC GLOBOCAN DATA FOR 2002 AND 2008
15 years ago people questioned the logistical and financial feasibility of treating HIV and multidrug-resistant tuberculosis (TB) in poor countries. Yet as Farmer points out, both are now being addressed on a large scale. Great strides have been made recently in a range of other tropical diseases, too. So why can’t it be done for cancer?

A more difficult job
Cancer takes a markedly different toll depending on the country. Lung cancer, a major killer in the West, is rarer in Africa, where fewer people smoke and life expectancy is shorter. Several virus-related cancers, on the other hand, are much more prevalent in poor countries. Cervical cancer, caused by the human papillomavirus (HPV), has become quite rare in rich countries thanks to screening with Pap smears. But it is common in the developing world, where 93% of the estimated 273,000 annual deaths from this disease occur.

Taken together, however, the burden of cancer is still lower in the poorer coun-

Making Her Life an Open Book to Promote Expanded Care

SUDBURY, MASSACHUSETTS—“You can ask me absolutely anything,” says Felicia Knaul—and she’s serious. Knaul, a health economist at Harvard Medical School in Boston, doesn’t mind telling in detail how breast cancer changed her marriage, her family, and her career. In her mission to shatter taboos around the disease and improve the lives of patients in developing countries, her professional and private lives have become one.

Knaul is one half of a Mexican-Canadian power couple that aims to end the neglect of cancer as a disease of the poor—and will succeed, if anyone can, say colleagues. The other half is Julio Frenk, the former health minister of Mexico and a much admired reformer, who is now dean of the Harvard School of Public Health (HSPH).

Knaul, born and raised in Toronto, says she has always had a keen interest in poverty and health. She lived in Bogotá for 2 years in the early ’90s, working on a project for street children and helping the Colombian government reform its health system. After meeting Frenk, who comes from a family of doctors, she moved to Mexico; she now considers it home. She joined the Mexican Health Foundation in Mexico City, where she still leads a research group. When Frenk became minister in Vicente Fox’s Cabinet in 2000, she worked pro bono to help him push through a major reform that extended basic health coverage to the country’s poorest and took effect in 2003.

That didn’t prepare her for her own terrifying brush with illness. In October 2007, a technician in Cuernavaca discovered a lump in Knaul’s left breast. It was malignant. After weeks of anguish, she underwent a mastectomy and started on chemotherapy. Knaul says she was lucky. She had access to the best doctors in Mexico, and—because her husband took a job at the Bill and Melinda Gates Foundation after he left the government in 2006—she even had insurance coverage in the United States. Knaul used it to seek additional treatment at the Seattle Cancer Care Alliance. She now rates her 5-year survival chance at between 85% and 90%.

That’s much more than most Mexican women with breast cancer can expect. Coverage for breast cancer treatment was added to Frenk’s insurance plan for the poorest in 2007; in reality, some women still don’t get treatment, for instance, if they live far from a hospital. Early diagnosis is rare. Many women forgo mammograms even where they are available, Knaul says, and a culture of machismo often leads men to abandon their wives or girlfriends if they lose a breast. Knaul recalls a woman recently diagnosed with breast cancer at a public event saying: “A woman without out breasts is ugly. I don’t want to be ugly.”

Knaul decided to start a program—it is now a not-for-profit group called Cáncer de Mama: Tómatelo a Pecho (Breast Cancer: Take It to Heart) that aims to raise awareness of and improve access to prevention, early detection, and treatment. Sharing her own story might help other women, she thought, so she wrote a frank book about her experience. The resulting TV interviews with her and Frenk made waves.

She and Frenk took the campaign to the next level after he was appointed dean of HSPH in 2008 and she became director of the Harvard Global Equity Initiative, a research program founded by Nobel laureate Amartya Sen. She had the idea to start a global task force to expand cancer care in poor countries. Frenk now co-chairs it with Lawrence Shulman, chief medical officer of the Dana-Farber Cancer Institute in Boston. Many of their well-placed friends signed on: former UNAIDS chief Peter Piot, director of the London School of Hygiene and Tropical Medicine; Columbia University economist and poverty warrior Jefrey Sachs; and CNN chief medical correspondent Sanjay Gupta. “They have really brought this to the doorstep of many people at high levels,” says Carlos Rodriguez, a pediatric oncologist at Dana-Farber.

The task force is now collecting evidence on how cancer care in developing countries can be improved, she says. To do so, she has helped recruit a series of papers for publication in The Lancet (see main text, p. 1548). Her own story, she realizes, is atypical for a woman in Mexico. Still, it reinforces her message, she says: “When you say at a meeting, ‘I have cancer,’ people listen in a way that happens with very few other diseases.”

Her frankness is part of her strategy. Mexican couples thanking her for her book will sometimes mention “chapter 18,” she says, in which she discusses how the chemotherapy-induced menopause shut down her sex life. At her art-filled house 30 kilometers west of Boston, Knaul also discussed, matter-of-factly, why, in her case, reconstructive surgery was not successful. (“The implant dropped a couple of inches,” she says, because of a lack of tissue to hold it up.)

Her own marriage didn’t suffer, she adds—on the contrary, the disease brought the two closer, and for the book, Frenk contributed fragments of four love letters written when she was ill. As Knaul wrote, “I had my boyfriend back.”

—M.E.
tries, which is one reason why it has failed to get global health policymakers’ full attention. Unfortunately, the developing world is catching up. In many middle-income countries, life expectancy is increasing, and obesity and smoking are on the rise, all of which lead to more cases of cancer. Women are having their children later in life and breast-feeding for a shorter time, which increases their risk of breast cancer.

And treating cancer is “much more difficult” than treating malaria or TB, Shulman says. Diagnosis is complex, requiring competently staffed and well-equipped pathology labs. Physicians in many countries are in short supply; oncologists are extremely scarce. There aren’t enough surgeons or operating rooms; 30 countries—half of them in Africa—don’t have a single radiation therapy machine.

Still, in The Lancet paper, Shulman and colleagues at the task force identified a list of cancers for which a lot can be done even in places with poor infrastructure (see table). These measures include battling tobacco use—which increases the risk of various cancers as well as cardiovascular disease—vaccinating against HPV and hepatitis B, improving early detection, treating eminently curable tumors such as Tushime’s sarcoma and childhood leukemia, and improving life-extending treatment for cancers like Kaposi sarcoma, an HIV-related cancer of the skin.

The price of drugs is not insurmountable, says HMS health economist and breast cancer advocate Felicia Knaul, who runs the task force’s secretariat (see sidebar, p. 1549). Of a list of 27 essential cancer drugs compiled by the task force, 24 are off-patent, and prices could be brought down further through negotiations with the pharmaceutical industry, Knaul says. A recent study showed that drugs needed to treat a case of Burkitt’s lymphoma—a cancer that primarily affects African children and is associated with the Epstein-Barr virus—cost less than $50, a bargain in terms of life years saved per dollar.

The biggest challenges in combating cancer—as for other diseases—are to build up expertise and infrastructure and extend care to the poorest people. Some private groups are intervening directly. For the past 18 years, pediatric oncologists at St. Jude Children’s Research Hospital in Memphis, Tennessee, which sets aside about 1% of its annual budget for global health, have pioneered so-called twinning programs that provide assistance to hospitals in 20 countries to improve cancer care for children. Several other pediatric hospitals have followed suit. The impact is real: In El Salvador, where the twinning started, the 5-year survival rate for children with acute lymphoblastic leukemia went from 10% to 60%, and is still climbing.

Partners In Health (PIH), best known for its pioneering work fighting AIDS and TB in Haiti, has long treated cancer patients as well, says co-founder and director Farmer: “They often go from one clinic to the next, seeking care.” But PIH is also working with governments to strengthen their health systems—and expanding cancer care is a key goal. The Rwandan government is very keen on it, Farmer says.

Currently, the PIH network still relies on Boston’s medical infrastructure for backup. Brigham and Women’s Hospital’s pathology department examines specimens to identify tumors, for instance, an indispensable part of diagnosis. (Shulman himself has returned from Malawi with a suitcase full of specimens. “Fortunately, nobody at customs checked,” he says.) But the plan is to develop pathology expertise and infrastructure locally. Brigham and Women’s has donated equipment for Haiti and Rwanda, and its chief technologist is training staff members. “We’re totally committed to doing this,” Shulman says.

Going horizontal

Expanding cancer care will cost money. Take the new HPV vaccines. So far they have been introduced in wealthy countries, but cancer experts say they would prevent far more cases of cervical cancer in poor countries, where Pap smears are seldom done. Their cost, more than $300 per vaccinated teenage girl in the West, has been a barrier to their introduction in the developing world.

But with the economy in a global dip, it’s hard to see where the money will come from. Cancer is competing for attention with the infectious diseases, which have seen a major increase in program support over the past decade but are still underfunded. Meanwhile, other diseases such as diabetes and mental illness are vying for attention as well. Mental health advocates are already disappointed that they won’t have a seat at the September U.N. meeting on noncommunicable diseases, where the task force is trying to make cancer well-represented. But it’s not one or the other, Farmer argues: “We have to get away from the whole notion of choosing between diseases.”

Gene Bukhman, head of Harvard’s Program in Global Non-communicable Disease and Social Change, advocates building up health systems broadly so that they can deal with not just cancer but also diabetes, heart disease, and a variety of other chronic ailments that each make up a small percentage of the disease burden. But this approach—sometimes dubbed “horizontal” as opposed to “vertical” disease-specific programs—isn’t particularly popular. The Bill and Melinda Gates Foundation is spending its billions mostly vertically, focusing on specific diseases. Likewise, many advocacy groups want to extend their work—say, on breast or prostate cancer—to the world’s poor, but they’re less interested in helping fledgling health systems.

Farmer, too, wants to channel the enthusiasm generated by single diseases into help for a better health system: “The breast cancer advocate needs to see that without a proper health system we’re never going to get early detection or good treatment.” Emotional appeals can help, Bukhman says, and that is where Tushime’s pictures come in. “I don’t think we’ve said this enough. When you see someone dying needlessly of cancer, it is an obscene inequality”—no different from seeing someone die from TB or HIV.

—MARTIN ENSERINK