Over the years, Meredith A. Hawkins, M.D., professor of medicine (endocrinology) and director of Einstein’s Global Diabetes Initiative (GDI), has met countless people with diabetes, each with a tale to tell. One especially heartrending story involves Isaac, an orphaned Ugandan teen with diabetes who sells his insulin to buy food for his grandmother. Regular hospitalizations are a way of life.

Isaac exemplifies the dire situation confronting more than 200 million people with diabetes who live in impoverished countries where proper care is hard to find. But Dr. Hawkins is undaunted. For the last decade, she has been crisscrossing the globe, laying the groundwork for grassroots campaigns to improve diabetes training and treatment in Africa, Asia and beyond.

The hub of Dr. Hawkins’ overseas efforts is Christian Medical College (CMC) in Vellore, India. This outstanding institution has provided comprehensive diabetes training to 120 hospitals around India, serving thousands of patients who would not otherwise have access to the specialized diabetes care they need.

The GDI lends its treatment

continued on page 2
Diabetes: A Global Perspective (continued)

Diabetes is no longer prevalent only in developed, industrial countries such as the United States. It has become a global epidemic. The estimated 26 million Americans with diabetes are part of a worldwide total of 366 million; nearly 1 in 10 Americans and 1 in 20 people in the world have diabetes.

In addition to its basic, clinical and community diabetes research, the Einstein Diabetes Research Center is a leader in bringing diabetes education and treatment to often-neglected countries through the Global Diabetes Initiative spearheaded by Dr. Meredith Hawkins. This issue of the DRC newsletter highlights Dr. Hawkins’ most recent efforts in India and Uganda. (She has also been featured in Einstein magazine and the Einstein annual report.)

As this issue went to press, we learned that Isaac—the Ugandan boy featured in our cover story—has died. Children with malnutrition-modulated diabetes in sub-Saharan Africa usually live no more than a year after diagnosis. But thanks to care from a dedicated nurse, Isaac lived for five years—reason to be optimistic that, with further research, this type of diabetes can be treated or even prevented. Contributions to benefit kids with malnutrition-modulated diabetes can be sent to the Einstein Diabetes Research Center, 1300 Morris Park Avenue, Bronx, NY 10461.

Finally, I want to remind our friends and supporters that we are forming a Diabetes Visiting Committee. You’ll find details on page 4.

A New Form of Diabetes?

One goal of the GDI team is to unravel a medical mystery. Early in her travels, Dr. Hawkins started encountering lean young people such as Isaac who had diabetes but didn’t fall into either of the two classic categories of the disease. Their age and body shape suggest type 1 diabetes, in which the body does not produce insulin. But giving these thin patients insulin not only fails to help them but causes many to die from low blood sugar (hypoglycemia). Nor do these children have type 2 diabetes, which is typically associated with obesity.

The scientific literature offers little insight. Some experts speculate that malnutrition at a key stage of development may trigger the disease, which has come to be known as malnutrition-modulated diabetes.

A basic scientist as well as a physician, Dr. Hawkins is determined to learn what causes malnutrition-modulated diabetes and how to treat it. Patients with this form of the disease are rarely seen in the West; over the last few years, she has been teaching scientists at Christian Medical College in Vellore, India how to conduct the sophisticated metabolic studies needed for understanding malnutrition-modulated diabetes.
The Personal Touch
In minority populations, lack of adequate follow-up care all too often means that diabetes leads to life-threatening complications. Preventing diabetic complications means keeping blood sugar levels under control—and knowing your A1C (glycosylated hemoglobin) level can tell you how well you’re doing. The A1C is a measure of a person’s blood sugar levels over the previous three months. In a report in Diabetes Care, Elizabeth Walker, Ph.D., R.N., professor of medicine (endocrinology) and of epidemiology & population health, studied 526 low-income adults with type 2 diabetes in the New York City area who were regularly reminded to get their A1C levels measured. She and her colleagues showed that as few as six telephone calls over one year from health educators—who checked medication, diet and exercise—improved diabetes control and got better results than the commonly used patient education materials.

What Tips the Scale?
Why do some people with pre–type 1 diabetes progress to full-blown disease, while others never do? Xingxing Zang, Ph.D., assistant professor of microbiology & immunology, is looking closely at a prediabetes phase called insulitis, in which two types of immune cells, CD4 and CD8 T lymphocytes, infiltrate pancreatic islets that contain insulin-producing beta cells. These lymphocytes destroy the beta cells and sometimes—but not always—cause diabetes. “Our research reveals that a protein called B7x expressed on the surface of pancreatic islet beta cells helps determine whether prediabetes progresses,” says Dr. Zang. He and his colleagues found that knocking out the B7x gene in mice reduced available B7x and spurred diabetes development; by contrast, triggering B7x’s overexpression blocked the disease. “Manipulating B7x levels could be a useful strategy for preventing or treating type 1 diabetes,” says Dr. Zang.

Diabetes: A Brain Disease?
In some ways, diabetes is as much a disease of the brain as of the pancreas. That’s because the brain’s hypothalamus regulates food intake, energy expenditure and metabolism, which go awry in type 2 diabetes. In a recent study, Dongsheng Cai, M.D., Ph.D., associate professor of molecular pharmacology, and colleagues showed that inhibiting secretion of oxytocin, a hormone produced by the hypothalamus, makes mice obese—a key step on the path to diabetes. Conversely, injecting oxytocin or inactivating a protein that prevents its secretion reversed diabetes. The findings suggest that oxytocin-regulating drugs could help treat or even prevent type 2 diabetes.

ON THE WEB
To learn more about the Diabetes Research Center, please visit www.einstein.yu.edu/diabetes

updates
DRC in the News
About seven million Americans with diabetes don’t know they have it—which is why Joel Zonszein, M.D., professor of clinical medicine (endocrinology) at Einstein and one of the directors of the Clinical Diabetes Center at Montefiore, is spreading the word. In the past year, Dr. Zonszein was interviewed by:

- WebMD about research indicating that walking may reduce diabetes risk.
- MSN HealthDay about how cold-like viruses may trigger type 1 diabetes in children.
- The Wall Street Journal about a study in which teen girls with type 2 diabetes had higher blood sugar, cholesterol and body weight—all cardiovascular disease risk factors—than teen boys with diabetes.

Rifkin Lecturer: Hannele Yki-Järvinen, M.D.
Each year, the DRC brings a leading diabetes researcher to campus to deliver the Rifkin lecture. This year the honor went to Hannele Yki-Järvinen, M.D., professor of medicine at the University of Helsinki, who spoke on nonalcoholic fatty liver disease. Dr. Yki-Järvinen also studies insulin resistance and treatment for type 2 diabetes.

The DRC sponsors the Rifkin two-day series of lectures each year in memory of Harold Rifkin, M.D., a clinical professor with a nearly 50-year association with Einstein and Montefiore. Dr. Rifkin served as president of the American Diabetes Association and the International Diabetes Federation and as editor of Diabetes Mellitus: Theory and Practice. His extraordinary intellect, charismatic teaching and advocacy for patient care and research were widely recognized.

Congratulations, Dr. Pessin!
DRC Director Dr. Jeffrey Pessin has been named senior associate editor of Diabetes, the American Diabetes Association’s premier peer-reviewed journal.
The Einstein Global Health Center and the International Diabetes Federation (IDF) joined forces on September 18, 2011, immediately preceding the U.N. Summit on Non-Communicable Diseases, to present the first Global Diabetes Symposium, titled “Finding the Way to Global Action.” Held at the Schottenstein Cultural Center in New York City, the event featured a dozen global diabetes leaders who gathered to define the epidemic, discuss responses to its causes and detail prevention and treatment.

“We have enormous challenges in implementing public health approaches, which will be vital both in the United States and globally,” said Allen M. Spiegel, M.D., Einstein’s Marilyn and Stanley M. Katz Dean and former director of the National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK).

Some quotes from the symposium:

“Last month I was in Oslo. They said, ‘We don’t have the problem you have in Africa.’ I said, ‘What is the prevalence of diabetes in the Pakistani community in Oslo?’ ‘Very high.’ Ladies and gentlemen, there are disadvantaged communities in every country in the world.”

– Jean Claude Mbanya, President, International Diabetes Federation

“The projections for diabetes are proving to be underestimated. For example, the figure of 366 million people with diabetes today, which the IDF just released, was projected for 2030.”

– K. M. Venkat Narayan, M.D., M.Sc., M.B.A., Ruth and O. C. Hubert Professor of Global Health & Epidemiology, Rollins School of Public Health, Emory University

“How common is malnutrition-modulated diabetes? Unfortunately, we have no global prevalence data. But it is believed to account for about 50 percent of young patients with diabetes in countries such as India and Nigeria. We predict that this is a significant entity globally.”

– Meredith Hawkins, M.D., M.S., Professor of Medicine (endocrinology), Albert Einstein College of Medicine; Director, Global Diabetes Initiative

Also represented were Columbia University, Purdue University, the University of North Carolina, the New York Department of Health and Mental Hygiene, Pepsico’s Global Health and Agriculture Policy group and the NIDDK.

To learn more about supporting the work of the DRC, please contact:

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