



I O N E D A Y I

One day of diabetes education in San Pedro Columbia, Belize, could change the lives of the 1,700 people who live there. And the lives of the 15 BU students who did the educating.

BY CALEB DANILOFF | PHOTOGRAPHS BY MELODY KOMYEROV



Sandra Archer (CAS'14) teaches children about diet, nutrition, and hygiene at a rural schoolhouse in Belize.

FOR A TOWN of fewer than 6,000, Punta Gorda sure makes a lot of noise, starting before day-break with the squalling of roosters and the straining of low gears on pickup trucks towing rickety fishing boats. In a stone bunkhouse across from the police station, breakfast forks clatter against plates piled with fry jacks smothered in bean sauce, scrambled eggs, and pineapple wedges. There is chatter among the 15 bleary-eyed Boston University undergrads, who are both nervous and eager to get going.

The group rolled into PG, as the locals call the Belizean port town, four days ago, part of a pilot public health initiative by the College of Health & Rehabilitation Sciences: Sargent College to try to illuminate the threat of diabetes, the number-one killer in this Central American country. Some of the students' fingers are still sore from pricking one another with blood sugar readers the night before.

In less than an hour, they will pair up in front of dusty blackboards in ramshackle classrooms packed with wide-eyed schoolchildren in San Pedro Columbia. There, they will talk about three things that are not often discussed in the rural hilltop hamlet: diet, nutrition, and hygiene. They also plan to visit the village clinic, where there may be a chance to test some locals for diabetes and hypertension. For most of these students, it will be their first hands-on clinical gig. They wash down the last of their breakfast with fruit juice and coffee and head out for a day of work unlike anything they've ever experienced.

The two-week diabetes initiative in Belize is the brainchild of Anna Monahan, a SAR clinical administrator, who heads the human physiology program's internships, and Shelley Brown, a clinical instructor in the health sciences program. The women teamed up with trip organizer Pro-World, which, among other logistics, helped identify villages and schools where the BU students would volunteer their knowledge and services.

"This trip marries all our disciplines," says Monahan. "It's the first time two departments have collaborated on something like this. It pulls together nutrition, occupational therapy, public health, human physiology."

But more important, she says, the experience will introduce these students, many from privileged backgrounds, to the need for cultural and socioeconomic sensitivity when treating patients.

"Training culturally competent health care givers—I don't think you can do that unless you immerse yourself in another culture," she says. "It's important for faculty, too, to have this cultural experience. You're not just dealing with white America. It's important that we have a deep understanding of other people's cultures."

After packing knapsacks, topping off water bottles, and coating their skin with bug spray, the 13 female and 2 male students step into the morning glare of a sun so strong they

can almost taste the heat. All of the students are sweating in long pants and short-sleeve shirts, attire worn out of respect for village modesty. And they will be sweating for a while: San Pedro Columbia, though just 18 miles away, is a slow, dusty, and bumpy bus ride.

The smell of burned foliage wafts through the windows as the late-model Blue Bird lumbers past a slashed-and-burned field, a common sight in this part of Belize. The students have been told that communities are growing while available land is not. Subsistence farmers find themselves walking farther to their crops. Some have given up and taken jobs in nearby towns, in one of several potent cultural shifts afoot in the country's southern Toledo District. The invasion of some bad American habits is another.

Belize, roughly the size of Massachusetts, is bordered on the north by Mexico and on the south and west by Guatemala. The population of 330,000 is a mix of Mestizo, Maya, Garifuna, East Indian, and Kriol, along with several communities of Mennonite settlers, and more recently, Chinese immigrants. A colonial heritage has left behind English as the official language (until 1973, Belize was called British Honduras), making it an ideal test site for the Sargent initiative, which, if all goes well, Monahan and Brown would like to continue, perhaps adopting a single school or village to study and work with.

DIABETES IN BELIZE In 2010, just over 12 percent of Belizeans over the age of 20, or 40,000 citizens, were affected by diabetes, according to the Ministry of Health. In the United States, where obesity has reached near-epidemic proportions, that figure stands at 11 percent. Between 2004 and 2006, the number of diabetic fatalities in Belize rose significantly, from 89 to 131, crowning it the Caribbean's leader in diabetes-related deaths. At the time, the obesity rate—one of the key risk factors for developing diabetes—was 60 percent, or some 200,000 Belizeans.

It's type 2 diabetes—the strain caused by environmental and lifestyle factors—that worries health officials, and the visiting BU students. One cause of the problem became clear

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when the students sampled the Belizean diet, which is rich in complex carbohydrates that break down into sugars and is heavy on fried oils. Meal tables see plenty of tortillas, rice, potatoes, fry jacks, and crispy chicken. In recent years, the local menu has grown to include junk food like Coke, Ramen noodles, chips, and candy bars. A high-fructose corn syrup ice pop called Ideal is especially popular among kids.

Despite the prevalence of diabetes, there is little public concern about it. The Sargent students are, in one sense, the tip of a spear. During their fortnight here, they plan to hold several testing clinics, compile data, visit more classrooms, and help build playgrounds to encourage exercise, a key



FAST FRIENDS Jena Daniels (SAR'12) (top), a veteran health services volunteer, chats with schoolchildren in San Pedro Columbia, Belize. "The biggest challenge is telling the kids I don't know when I'm going to see them again," Daniels says. Small groups of BU undergraduates (bottom) make home visits to screen residents for diabetes, the number-one killer in the Central American country.





HEALTH ALERT Anna Monahan (top, left), a Sargent College clinical administrator, is alarmed by the high blood sugar level of this Belizean woman. Nicole LaSpina (SAR'14) (bottom) tests one of the villagers who arrived at an impromptu diabetes clinic at the San Pedro Columbia school. Despite the prevalence of diabetes in Belize, there is little public concern about it.



DIABETES AND OUR BODIES

weapon in the battle against the disease.

“I’ve been wanting to find a real-life use to my schoolwork,” says Mariah Hecker (SAR’13). “You sit in a classroom, read the textbooks, and learn about these diseases and prevention, how the human body works, but you have no chance to really put it into real-life use.”

SAN PEDRO COLUMBIA The San Pedro Columbia Roman Catholic school is a low-slung single-story affair overlooking a clutch of thatched roofs and ragged palm trees. The goalposts on the scrubby soccer field have no nets. A single dented metal trash can is chained to a pole. Nearby, a painted wooden sign warns against littering, which seems to be the routine method of garbage disposal. Back in Punta Gorda, some of the rocky beachfront is choked with empty bottles, candy wrappers, cigarette packs, and plastic bags.

The majority of the 500 or so elementary and secondary students here are Kekchi Maya, an indigenous ethnic group. They wear dark pants or skirts and sky-blue shirts. In their crowded classrooms, posters and drawings hang from a line strung across the room, others from clothes hangers. The day begins with the Lord’s Prayer and the Serenity Prayer. Then pairs of BU students take over, quizzing the students on healthy meals and snacks, dissecting the food pyramid. “How many of you exercise every day?” asks Veronica Lee (SAR’13). The kids are shy at first, but begin raising their hands.

At recess, the BU teams lead their classes in variations of childhood games like Duck, Duck, Goose and Mother, May I, substituting healthy food choices for correct answers.

DRIPPING WITH SWEAT, THE STUDENTS STRUGGLE TO HEAR HEARTBEATS OVER THE POUNDING RAIN.

Some of the kids are barefoot, others have scars and open sores. Jena Daniels (SAR’12) is stunned when her whole class returns to collect a classmate who is too sickly to run with the others to the field.

“It was so inspirational,” says Daniels. “The whole class came back and made a circle around me and were ready to listen. I had to take a moment and collect myself. I live for moments like that.”

Third grade teacher Daniel Palma, who has been teaching for 19 years, the last 3 at San Pedro Columbia, watches the interplay.

“It wasn’t like this when I grew up,” he says. “Most students went from school to home, then home to work. They had chores on the farm. Now, they aren’t working at all. Many of their parents don’t plant their own crops. They buy everything. The kids’ snacks are sweet. It’s something that’s growing in our community. Parents are out, so they get fast food. TV is a major thing, too. You’d be surprised how many movies the kids watch on a daily basis.”

Across the yard, a seven-year-old boy named Amir joins an older group led by Sandra Archer (CAS’14). Amir

Diabetes arrives in two forms. Type 1 is genetic and often reveals itself in childhood. Type 2 is environmental, brought on by poor diet, obesity, and lack of exercise. In both cases, glucose is improperly distributed to the body’s cells. Typically, the sugar is moved from the blood by insulin, but in diabetics, either the body produces an insufficient amount of the hormone or the insulin doesn’t behave correctly. Since sugar is the body’s main source of energy, symptoms include fatigue, dehydration, and poor circulation, which, if untreated, can lead to the amputation of feet and hands. Blindness, heart disease, kidney failure, coma, and death are also common consequences of the disease. While diabetes is treatable with insulin and other medications, it remains a chronic condition, and usually cannot be cured.

has eyes the color of roasted coffee beans and a gleaming, mischievous grin. Archer, the youngest BU student on the trip, is smitten. Amir says he doesn’t want to go back to class. His classmates chase him, but he’s too quick. Archer, a psychology major from Miami, Fla., who hopes to be a pediatric psychiatrist, persuades the imp to resume his lessons, leading him by the hand back to his classroom. He squeezes her palm tightly, and she makes him promise to stay in class. As they part, Archer warns him about the dangers of running around barefoot, especially with pigs, and the parasites they carry, roaming freely in the village. Later, when she visits Amir’s classroom to help teach, his desk is empty. She asks around. Someone says he saw the boy walking across the field with his book bag. Another says his mother is sick.

Meanwhile, Monahan and Brown head around the bend and down a dirt road to the clinic, a few hundred yards from the school, with Monahan’s older sister, Tracy Roderick

Burton, a veteran critical care nurse at Winchester Hospital in Winchester, Mass. Burton is acting as the trip’s medical consultant. When the three

women get to the small, squat building, they are told the nurse had to dash off. A local woman had lapsed into a diabetic coma and was rushed to the hospital. That means no afternoon testing here for the BU students—until a teacher back at the school asks if she might get checked.

So like Clark Kent in a phone booth, the students morph from educators to clinicians, stethoscopes around their necks and purple latex gloves on their hands. One teacher after another stops by the classroom-turned-clinic, followed by a few staffers and administrators. Dripping with sweat and hunched over undersized desks, the undergrads strap on blood pressure cuffs, prick fingertips, and record data. They struggle with uncooperative scales and strain to hear heartbeats over the pounding of rain on the tin roof. Curious school kids crowd around, ratcheting up the noise level. Then suddenly, the rain stops, and it isn’t long before the puddles outside are leached dry. That’s when the villagers show up. Every patient leaves with a vital statistics card they can bring to their next doctor’s visit.

By midafternoon, the BU students are saying their good-byes, kids still tugging at their arms, begging to play just

one more game, kick one more soccer ball. “The biggest challenge is telling the kids I don’t know when I’m going to see them again,” Daniels says.

HOME VISITS But the day isn’t over yet. One of the Pro-World staffers, who grew up in San Pedro Columbia, has arranged some home visits with patients from the clinic. Walking in groups of three and four, the students set out on the rocky roads. Skinny dogs prowl near the clay stoves in the yards. A family of pigs trots across the road. Near one thatched hut, small boys climb a tree and hang from the branches like fruit, gawking.

Philip Lee (SAR’13) steps into a home, stethoscope in hand. There are large piles of dried corn on the cement floor, waiting to be made into tortillas.

A wash bin stands in a corner. A thin woman in a pink dress, with olive skin and a wrinkled face, sits in a hammock.

Lee squats before her, pumping the blood pressure ball. An elevated reading. Blood sugar’s up, too. She tells Lee she was prescribed medication, but it’s not working.

“She hands me two packets of meds with no directions on them,” he recalls. “These people are going on the memorization of what the doctor tells them the day they get the medicine. It’s a shocking experience when you have this disease that can kill. I was trying to help her understand when to take her prescription. I just hope she follows my directions.”

In most of the homes, the glucose readings are high, some in the 500s, far from the normal range of 70 to 160 milligrams per deciliter of blood. Even Burton, who has treated trauma victims and the very sick, is shocked by the numbers.

“It was stunning,” she says. “My first thought was that the readings were wrong. Back in the States, they would be in the

ICU with an IV drip, but here they’re walking around, doing laundry, washing dishes. And obesity doesn’t always seem to be at play. We saw a couple of people who were very skinny, but who have very high glucose levels.”

The sun is dropping in the sky when the last group of BU students climbs back onto the school bus, tired, dusty, sweaty. Rain is spitting. All is quiet, when suddenly, through

the window, Archer spots Amir, barefoot and shirtless. She bolts down the stairs.

“Something in me told me to get off the bus and talk to him,” she says later. “He said, ‘Come see my mom,’ and he takes me to his house, which is literally just a room. No water, no light, not even furniture. Just some clothes hanging to dry. His mom was laying there on two slabs of wood, and her head was resting on a bag of rice. The lady had a fever. So I went back to the bus and got some aspirin.”

Archer worries that she should have done more. “I should have given them some money,” she says. “I should have given them some food. Amir hadn’t eaten all day, but it was late and everyone wanted to leave. I wish I’d ignored that and given him some food.”

As Archer takes a seat at the back of the bus, Daniels, the

veteran of the group, who had traveled to Haiti on a service trip after the 2010 earthquake, recognizes the look on her face. She waits until the bus begins to lurch up the road, then takes a seat beside Archer.

“I told her, he’s going to remember you walking him home in the pouring rain, he’s going to remember that you lectured him on wearing shoes and a shirt,” Daniels recalls. “And you’re going to remember this entire day and this opportunity to teach someone something. You have to focus on that.”

Brown and Monahan would later take Archer aside to talk about the delicate balance between commitment and the kind of emotional surrender that can do more harm than good.

“WHEN I HAVE RELIEVED STRESS OR PAIN, THAT’S WHEN I KNOW I’M DOING WHAT I’M SUPPOSED TO BE DOING.”

“For some students, this is their first time out of country,” Brown says. “They’re thrown into a school, doing testing, and they’re responsible, for that moment, for someone’s medical situation. Then to see these high readings, they feel the responsibility. I think it really takes its toll. It makes me realize how committed and passionate they are, but you have to strike a balance. You can’t save everyone’s life. You can make small impacts. The people will keep living the lives they’re living.”

Back at the bunkhouse, Daniels says the San Pedro Columbia experience has clarified her plans.

“When I know that I’ve relieved some small piece of stress or agony or pain for a patient, that’s when I know I’m doing what I’m supposed to be doing,” she says. “I just need to go with it, to figure out how to continue to make a difference.”

For Philip Lee, the trip has fortified his commitment to a career in medicine.

“A lot of people who want to become a doctor find out about the helplessness, the emotions, during residency and internship,” he says. “To have this experience so early on, in my sophomore year of college, has only made me want to do this more.”

It’s those moments of realization that SAR Dean Gloria Waters was hoping for when she signed off on Monahan and Brown’s proposal last spring.

“A major component of our strategic plan is to develop additional internship and service learning opportunities for our students,” Waters says. “Many of the participating students indicated that it was one of the best experiences they’ve had. Given its success, we’ll be looking for ways to make it more formally a part of the experiences available to students at Sargent.”

After dinner, the students lounge on the second-floor veranda, some swinging in hammocks with their eyes closed, others writing in journals. A soft breeze dances off the ocean. It’s late. They’re tired. They know they should be headed for bed. In a few short hours, the roosters of Punta Gorda will start to crow, and there is much to do tomorrow. There is much to do with the rest of their lives. ■

WEB EXTRA
Watch a video of the students’ trip to San Pedro Columbia, Belize, at bu.edu/bostonia.



FAMILY CHECKUP Jessica Gallagher (SAR'13) weighs a village resident (top) while the woman's son looks on. Gallagher and her fellow BU students performed more than 200 tests during their two-week trip to Belize. This woman's blood glucose reading was high, a strong indicator of diabetes. Education about the disease, and about the ways to prevent it, is virtually nonexistent.

