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A Year in Honduras

A medical student learns about healing while he works on the basic needs of water, nutrition and education for the people of San José

Since July 2008, third-year medical student Matthew Malek, 25, has spent his year-out in the rural village of San José, a community of approximately 300 households situated in the rugged western mountains of Honduras. Electricity services only 6 percent of the houses, and about 80 percent of the houses lack piped water. Nobody has a flush toilet; about half don't even have a latrine. Getting to the nearest Internet connection requires a walk of from one to three hours. Matt has been living alone in the adobe community building in San José, working in the dual capacity of researcher and community health volunteer.

On the research side, Matt is conducting a randomized, controlled trial involving in-home ceramic water filters. Given that low compliance is the greatest obstacle to the success of such devices, his study aims to determine whether follow-up by a community health worker reliably increases long-term filter usage. As part of the research, he is making repeated home visits at 100 enrolled houses — no small task in the mountains of San José. In addition to the academic value of the research, the project is bringing safe drinking water to hundreds of men, women and children in San José. Funding for the research and year-out experience was provided by an International Medicine Research Grant from the University of Rochester School of Medicine and Dentistry's **Center for Advocacy, Community Health, Education and Diversity**.

On the community-health side, Matt is working in collaboration with the Non-Governmental Organization Shoulder to Shoulder and Rochester's **Family Medicine** residency program. For three years, the Family Medicine program has sent biannual brigades to San José, offering curative medical care. In addition, the program organizes and financially sponsors a variety of ongoing community-driven projects aimed at alleviating the underlying causes of illness in San José: dirty water, poor sanitation, malnutrition, lack of education and poverty. As the only continuous "on-the-ground" person in San José, Matt is charged with overseeing and growing these initiatives. He directs programs to build latrines, ventilated cook stoves and piped water systems. He coordinates a scholarship program and a microfinance program, and drives a host of other smaller projects targeting the enhancement of agriculture and the alleviation of poverty. This translates into many hours spent out in the community — coordinating, communicating, encouraging and educating. Matt's research and his public-health work are being conducted under the mentorship of **Douglas Stockman, M.D.** (M '86, R '89), clinical associate professor and director of global and refugee health in the Department of Family Medicine. For information on the projects or to contribute, go to **www.sanjosepartners.org**. Matt, who returns to Rochester and medical school in June, writes about his year-out:



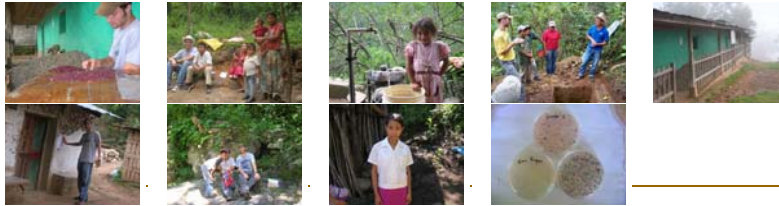
It's January of 2009 and I'm in San José, Honduras, on my way to pay Sonia an afternoon visit. I'm walking, being that there aren't any roads. And since I'm walking, I must either be going up or going down, because there aren't a lot of flat places in a community with 3,200 vertical feet between the top and the bottom. In this direction, it's been an hour and a half of down, down, and down. My perception of medicine over the last seven months has been no less fraught with ascents and descents.



As I near Sonia's house, the barks of a few scraggly but feisty dogs greet me. Sonia and her four daughters chase the dogs away and



Sitting on the front porch of his home, the community center in San Jose, Honduras, Matt Malek cleans sticks, stones and bugs from beans he cooks for his meals. Two piglets, owned by neighbors, keep him company.



invite me to rest in a toddler-size, stick-and-cowhide chair on the outside porch. The cup of highly sugared coffee I am soon offered completes the typical San José hospitality.

Today, however, something is different. The kids are giggling more than they usually would when the “gringo” visits, and all this cordiality has the air of being merely a prelude to the big show. So, with no further ado, I ask the question I know they are dying to answer: “So, have you finished the water project?” With a gleaming face, revealing the magnitude of the accomplishment, Sonia replies, “Yes, yes, just last week. Do you want to see?”

The youngest, Joaquina, darts to a solitary piece of PVC pipe, topped with a bronze valve that stands in the center of the yard. She opens the valve and there it is: water, simple and pure. I can see in her excitement the knowledge that she will never again waste her youth, her calories, and her study hours hauling water. No more two-hour treks, twice a day, weighed down by 30 liters of dirty,

not-suitable-for-consumption water. For her, her sisters, and her mother, Sonia, piped water is independence, power and improved health.

A few days later, I sit in the stick-and-cowhide chair of another friend, Ignacia. We are sharing a similar cup of coffee but a very different water-related experience. Instead of showing off a new water spigot, Ignacia holds a small petri dish in her hands. Unlike Sonia, Ignacia and her daughters still spend hours every day fetching their water from a self-described “spring.” The source would be more accurately described as a parasiteand- feces-filled hole, but one that contains surprisingly clear surface water.

I first visited Ignacia only a week earlier, as part of a research study involving in-home water filters. At the time, she reported that every one of her six young children had suffered at least three days of diarrhea in the last week. She maintained that her water was clean, but still gladly handed me a sample of her drinking water when I offered to check it with a microbiological test. Today, Ignacia stares at the petri dish with a mix of disbelief and fright. Instead of the consistent yellow of the clean demonstration sample, her plate resembles a tie-dyed t-shirt, exploding with the colors of numerous colonies of diseasecausing bacteria. Encouraging her to look closer, I point out the small, writhing worms that also are growing in the plate. Catching sight of these parasites, the little boy looking over her shoulder averts his eyes and runs off.

“He’s lucky he doesn’t look in his stool,” I think.

Looking up, Ignacia takes a thoughtful pause, then begins asking questions:

“So this is all in my water?”

“And all these are little animals?”

“And you think this is why my kids are sick?”

And finally: “Well, how do I get these out of my water?”

Ignacia may have less than a year of formal education, but she quickly has a very real understanding of germ theory and its effect on her children. Knowledge is power, and within a few weeks she has scrounged and saved the two dollars needed to buy the water filter I had offered her during my original visit. Empowered, Ignacia stands ready to reduce the diarrheal disease burden of her children, thereby improving their probability of survival, their quality of life and their overall nutrition.

Once more on the trail, I am now on the way to the house of 12-year-old Regina. Having lost both parents at an early age, she now lives with her elderly grandmother. When I arrive, however, I find an unexpected large gathering of people sitting in the yard, one in

a hammock, a few on a stack of spare adobe blocks, and a whole slew of little ones running about. I come to learn that the adults are her four older siblings, each with their several children.

I'm visiting Regina because she is the first from her family to graduate the sixth grade. Even more important, she was selected for a scholarship to attend middle school, but didn't come to the meeting earlier that day to claim her scholarship. Word on the street, or should I say "word on the trail," is that she doesn't want to go. Before accepting this rumor, I've come to inquire. At first, Regina's grandmother tells me that Regina can't matriculate because school supplies will be too expensive. At about \$200 for the year, this would be true if all expenses were left to be covered by Regina's subsistence-farming family. I explain that the scholarship will cover all these costs; she takes a pause.

Next, Regina's grandmother reminds me that it's too far to walk. Indeed, it would be six hours of walking a day. I tell her that the scholarship includes a stipend to pay for food and housing closer to the middle school. Once more, she takes a pause. Her belief in the impossibility of education for her youngest grandchild, a girl, nonetheless, has almost fallen.

"Well, I don't think Regina wants to study," comes the final reservation.

I ask if she is sure, and turning to Regina, she questions in a low voice: "Do you really want to go? Do you think you can do it?"

In a quiet yet excited voice, and with her eyes to the ground, Regina responds with a simple "Yes." The two accept the scholarship.

As we move forward with the next administrative steps, however, I can't get over the significance of the moment. Regina, the first in her family to graduate the sixth grade, will now be the first to go to middle school. Might she also be the first to hold a paying job? And the first to be empowered enough to have a say about the size of her family? And, ultimately, the resources to provide adequate nutrition to her family? I have hope.

So then what matters to improve the health of the individuals of San José? The people here tell me that three basic needs — water, nutrition and education — are their greatest health concerns. After less than a year in San José, Sonia, Ignacia and Regina have completely convinced me of this.

The University of Rochester School of Medicine and Dentistry teaches its medical students about the broad causality of human disease, encapsulated in the "**biopsychosocial**" model. Contemplating the biopsychosocial model during my time in San José, however, I begin to wonder why I even bother with the "bio."

In San José, as in most of the developing world, the most common causes of childhood death are pneumonia and diarrhea. Sonia, Ignacia, Regina and their families don't care about the antibiotic sensitivities of the causative organism of their pneumonias. What they do care about are the true causes of their illnesses: lack of clean water, nutritious food, clean air and the knowledge of how to apply these things for the betterment of their children. These preventable etiologies are only "biology" in the sense that humans are biological animals, and we have created and perpetuate the situations that prevent attaining these goals.

Suddenly, the past two years of my medical education — an endless sea of "bio"-heavy PowerPoint presentations stressing the latest data about the pathogenesis, diagnosis, treatment and prognosis of every disease known to man — seem utterly silly. Here, where disease is really just the result of the "psychosocial," I can't help but think that I should really dedicate my efforts to that.



But the world doesn't stop. A few sunsets later, I find myself sitting in the dark interior of Lacero's two-room house. Outgoing, my age, patient with my Spanish and the owner of a very small "convenience store" I often visit, Lacero and I are good friends. The mood this evening, however, is somber. I am holding something up to the one light bulb that illuminates the space, gravely worried by what I see. Lacero breaks the silence with a forceful cough.

Lacero began to cough about the same time the electricity was turned on in San Jose, three months ago. At first, he didn't think anything of it, assuming it was probably just another cold, since that's what you get during the cool, windy nights of the wet season. After two weeks of a worsening cough and fever, Lacero finally walked the hour to the understocked health center, where he was given the local cure-all, a vitamin B-12 shot. He was satisfied.

Three months and three B-12 shots later, a few visiting physicians and I convince Lacero to go to the city for more thorough testing.

Now I sit holding Lacero's chest x-ray up to the light. I can count the distinctive cavitory lesions of tuberculosis with painful ease. The last time I saw such a classic image, which was from a comfortable seat in a first-year lecture hall, I thought nothing of it. Sitting here with my friend Lacero, I wish I had paid more attention. To merely recognize that this is tuberculosis makes me feel helpless. I want to treat.

In this way, in that dark room, Lacero reminded me why I bother to learn the "bio." Yes, the "psychosocial" carries immense weight, especially in poor countries, and must be addressed if I want to practice complete medicine. But at the same time, when my friend is in that moment of crisis, I want to know the cure. To only treat the "psychosocial" while ignoring the "bio" would be to deprive me and my future contacts of that unique joy: healing.