Creating a Healthier

Students help with home cooking and grinding coffee in Ethiopia (top and far right) and observe tortilla production in Mexico.
What do millennials want? The popularity of a new CALS-based program addressing global health concerns offers at least one answer.

By Robin Mittenthal

YOU CAN’T SPOT THEM RIGHT AWAY—they’re hidden in plain sight, often disguised as majors in the life sciences—but there are thousands of undergraduates on the University of Wisconsin–Madison campus who, in terms of their future careers, consider themselves “pre-health.”

What are their reasons? For some students, the motivation is acutely personal. As a child, Kevin Cleary BS’13 (biology) felt an urgent need to help as he watched his father deal with recurrent brain tumors. “By age 11, I knew I had a future in health care,” says Cleary. Many others aren’t yet sure what role they will play, but they are eager for guidance on how to use their majors to address an array of global problems including hunger, disease, poverty and environmental degradation. Says senior biochemistry major Yuli Chen, “I want to make an impact on people, and I believe that every person has the right to be provided basic necessities such as clean water, education and food.”

For much of the past century, young people seeking to address health-related suffering may have felt relatively limited in their options. Most considered medical school (still the gold standard to many), nursing school or other familiar allied health occupations that are largely oriented toward addressing disease after it occurs.

In recent years, however, health experts worldwide have placed an increasing emphasis on the importance of prevention in achieving health for the largest possible number of people. This was illustrated at UW–Madison in 2005, when the University of Wisconsin Medical School changed its name to the School of Medicine and Public Health, offering the following reason: “Public health focuses on health promotion and disease prevention at the level of populations, while medicine focuses on individual care, with an emphasis on the diagnosis and treatment of disease. Ideally these approaches should be seamlessly integrated in practice, education and research.”

The founding in 2011 of the interdisciplinary Global Health Institute (GHI), a partnership of schools, colleges and other units across campus, broadened the university’s approach to health still further:

“We view the health of individuals and populations through a holistic context of healthy places upon which public health depends—from neighborhoods and national policies to the state of the global environment. This approach requires collaboration from across the entire campus to address health care, food security and sustainable agriculture, water and sanitation, environmental sustainability, and ‘one health’ perspectives that integrate the health of humans, animals and the environment.”
Demand by UW students for educational options built around this broad concept of health had been growing for some time. Before the creation of the GHI, an Undergraduate Certificate in Global Health was introduced to offer students an understanding of public health in a global context. The certificate explores global health issues and possible solutions—and shows students how their own majors and intended professions might make those solutions reality. Although administered from CALS and directed by CALS nutritional sciences professor Sherry Tanumihardjo, the certificate accepts students from across campus and highlights ways in which teachers, engineers, farmers, social workers, journalists, nutritionists, policy makers, and most other professions can play a role in global health. Funding is provided through the Madison Initiative for Undergraduates, grants and private donations.

Earning the certificate requires completion of core courses focusing heavily on agriculture and nutrition, the importance of prevention and population-level approaches in public health, and the role of the environment in health. Students also complete relevant electives (examples: women’s health and human rights, environmental health, international development), and—most transformative for students—a field course, usually a one- to three-week trip either abroad or to a location in the United States where a particular global health issue is being addressed by one or more local partner organizations in ways specific to the place and the people who live there.

Although the program is young, it already has made an impressive impact on campus. A few statistical highlights (as of January 2014):

- Nearly 400 declared students and 250 graduates drawn from more than 80 majors across campus.
- More than 500 students completed intensive, faculty-led small-group field courses either in the U.S. or abroad. More than 60 others have completed individualized experiences.
- 2014 will see more than 20 field courses spanning 14 countries on four continents.

Program alumni are pursuing careers in global health:

- 30 students went on to graduate programs in public health, medicine, nursing, nutrition and related fields.
- 34 others have taken jobs with the Peace Corps, Americorps, and Teach for America. 13 are addressing health disparities with Wisconsin’s Department of Health Services or county-level agencies around the state.
- In exit surveys, 82 percent of alums said that the certificate was either “important” or “very important” in shaping their view of health and well-being in the world.

We are pleased to present here a few compelling stories from the program’s field courses. We hope they convey at least some of the excitement students express at combining the tools and practices of diverse majors with cultural competency, language skills and key concepts in public health.

**Linking Agriculture and Nutrition in Mexico**

Many of the world’s poorest and most vulnerable people never see a trained medical specialist—but they all need to eat. Having regular access to nutritious food is at least as important for their health and well-being as improving local medical care.

One of our best tools for getting this message across is a field course titled “Linking Agriculture and Nutrition in Mexico,” for which Tanumihardjo partners with a rotating set of CALS agronomy faculty to lead groups of students to the International Maize and Wheat Improvement Center in Texcoco, Mexico.

Better known by its Spanish acronym, CIMMYT (pronounced “SIM-it”), the center focuses work with maize (corn) and wheat on breeding and production methods aimed at supporting the needs of small-scale or subsistence farmers. Unlike American farmers who use such inputs as machinery, fuel, fertilizers and pesticides to grow large amounts of one or two crops for processing, animal feed and export, subsistence farmers grow most or all of the food they eat themselves. For subsistence farmers, improving both yield and nutritional content is critical, but improvements must come without increasing reliance on costly inputs.

Students spend an intensive week learning about the challenges, opportunities and health stakes that exist at the intersection between agriculture and nutrition. A plant breeder explains efforts to increase the vitamin content of corn. Farmers show students their crops and talk about how their families use them to prepare meals. A tour of a local tortilla factory includes discussion of which local varieties of corn are suitable for tortillas. Visits to the National Institutes of Health of Mexico shed light...
on Mexico’s severe obesity problem. Even visits to restaurants include discussion of traditional versus “modern” dishes, portion sizes, nutrient content and the sources of different ingredients. Visits to sites such as the amazing pyramid complex at Teotihuacan and the Anthropology Museum in Mexico City help students appreciate Mexico as a culturally distinct place with natural and human-made beauty that Mexicans are proud of and working to preserve.

The course has had a transformative effect on many of the some 40 students who have taken it so far. For some, the trip resulted in a major change of direction. “I was lost at UW–Madison as a freshman general biology major,” says Nicole Bacheller, who traveled to Mexico in 2011. “Visiting CIMMYT helped me see connections between my interest in plants and my desire to support community health. I changed my major to plant pathology, confident that I could study biology and save lives without being in a medical field. I have since focused my pathology work on questions related to international food security.”

Says Stephanie Kroll BS’12, who took the trip as a genetics major, “The course was like a shot of enthusiasm that I needed to pursue public health.” She is now pursuing a master’s degree in public health at the UW School of Medicine and Public Health.

Food Systems in Ethiopia

Most Americans who have any impression of Ethiopia think of televised reports of famine from the mid-1980s—images that conveyed hopelessness and dependency. But the six students (four of them from CALS) who took “Biodiversity, Health and Food Security in Sidama, Ethiopia,” a course launched in 2013, had a life-altering experience of a country that is far more diverse, vibrant and invested in its own sustainable development than they could have imagined.

The course is led by Heidi Busse, a vascular surgery researcher, and Girma Tefera, a professor and vascular surgeon (and a native Ethiopian), both of them with the School of Medicine and Public Health. Ethiopia struggles with a severe shortage of medical professionals, and Busse and Tefera are involved in ongoing efforts to address that. But their understanding of the root causes of many medical conditions motivated them to create a field course emphasizing how such nonmedical interventions as improved agricultural productivity and access to clean water also can support health.

Students on this course spend two weeks in an agricultural region named for the Sidama people. Though most farmers there still practice subsistence agriculture, Busse says that “the landscape and communities in Sidama are changing rapidly, largely due to external factors that impact local economic, environmental and social and household structures. These changes are often guided by market goals that may conflict with the values of local communities and are not ecologically sustainable.”

One factor driving change is global demand for coffee, which can be grown either in large, single-species plantations or in multipurpose agroforestry systems that also produce timber, food crops, fodder for livestock and medicinal plants. The large plantations produce more coffee and profits, but they require more water, fertilizer and other resources than smaller, traditional systems. Maximizing human and environmental health requires Ethiopians to perform a very intentional balancing act between traditional and modern production systems.

To explore how Sidama residents are finding that balance, students meet with representatives from a wide variety of governmental, nongovernmental and community groups. One is the Fero Coffee Farmers Cooperative, which has more than 4,000 farmer members. During a tour and coffee ceremony students learn how co-op growers integrate coffee production with growth of other crops (Busse calls these growers the “elders of permaculture”) and also how the group is working toward a balance of male and female members. These and other lessons reinforced themes of community empowerment and “asset-based community development,” which focuses on how existing skills, resources, institutions and other strengths can be organized for maximum effectiveness.

Students also participated in a service project with Common River, a local NGO. As part of it, students under the guidance of Alex McAlvay, a UW doctoral student in botany, local elders and other community members investigated the distribution, abundance, diversity and uses of local medicinal plants. Their work resulted in the Handbook of Sidama Traditional Medicinal Plants, a 40-page book that “formalizes” a large
body of knowledge that had been passed along over generations but was never put on paper. With luck, it may help justify the preservation of these plants and their habitats in the face of a regional loss of biodiversity and related cultural change.

Besides the handbook, Lennea Rylander BS’13 (agricultural and applied economics) worked on a blog about the Ethiopian coffee industry for the Madison-based fair trade coffee roaster Just Coffee. “Visiting Ethiopia makes the world feel both smaller and larger,” she says. “On the one hand, Ethiopia is no longer some far-off place on the other side of the world. On the other hand, learning so much about a country makes me think about the rest of the world and how big it is. There are endless possibilities to learn and grow from other cultures in other countries throughout my life.”

CPR in El Salvador

A MEDICAL SERVICE trip to Nicaragua had taught biology major Jordan Wackett BS’13 about the extreme limitations in access to health care faced by many people there—and he was determined to address them. Other assets: Wackett was certified as both an emergency medical technician (EMT) and cardiopulmonary resuscitation (CPR) trainer, and he spoke fluent Spanish. Those interests and credentials put him in a position to design his own field course for an Undergraduate Certificate in Global Health.

After speaking with various experts—including a physician acquaintance in Nicaragua, Global Health Institute associate director Lori DiPrete Brown, and School of Medicine and Public Health professor and emergency medicine physician Nestor Rodriguez—Wackett concluded that working to improve CPR education would address an obvious need. “It came to me that there was a knowledge gap,” says Wackett. “They have incredible physicians down there, but they don’t have what we see as this basic skill. It’s medicine but it’s also preventive, especially for people with no other health care.”

Wackett and another certificate student, Beau Trapp, applied for and received a Wisconsin Idea Fellowship from UW’s Morgridge Center for Public Service to pursue their work. Originally the two had planned to work in Nicaragua but, networking through Rodriguez, they found more receptive partners in El Salvador.

They ended up conducting four CPR classes in San Salvador for a total of 165 physicians, residents and medical students. Prior to, during and after their trainings, Wackett says, “We met with physicians and just talked.” Before starting, they asked their local contacts what they felt the CPR-related need was. “We wanted to get an idea of how effective our training would be because of the cultural barriers, the language barriers—stuff like that,” Wackett says.

Feedback on their classes was uniformly positive, but to them the courses (which they ran with equipment purchased with Wisconsin Idea Fellowship funds) highlighted the scarcity of both equipment and skilled trainers. “We learned that most people had in fact had a CPR course at some point, but had not had refresher courses or learned about changes in CPR protocol,” says Wackett. “The barrier is financial—one CPR class costs as much as one month’s tuition at the best private medical school in El Salvador.”

Wackett expects that those discoveries will help shape his future visits to El Salvador. “Even more than training in CPR, they need trained trainers,” says Wackett, who is now enrolled in both an M.D. and a public health program at the UW School of Medicine and Public Health. “If we can help create those people, then we’re not needed so much. They also need low-cost equipment for both training and actual CPR. What we use here is not necessarily appropriate for them, but other things could work.”

Wackett is one of more than 70 students who have designed their own field experiences and worked with the program’s executive committee to get them approved. Through internships, research projects and study tours, they have explored subjects as diverse as human trafficking, the management of refugee camps, and the prevention of asthma and allergies for residents of low-income housing. These unique experiences require a disproportionate amount of work by students, certificate staff and diverse partners on and off campus, but they clearly are having an outsized impact on the development of the students involved.
Global Health at Home

Not all students have the time or money to travel to far-flung places. Nor must they in order to develop what DiPrete Brown calls “local-to-global awareness.” To a greater or lesser extent, any health issue that you might find abroad is manifested in the United States, often in or near Madison.

As the global health administrative program manager, I have partnered for two years with Gayle Coleman BS’77, a nutrition program specialist with UW-Extension, to run a course focused on Wisconsin’s USDA-funded Special Supplemental Nutrition Program for Women, Infants, and Children (WIC). WIC is a public health intervention that is active in communities in every state.

Unlike the Supplemental Nutrition Assistance Program (SNAP, formerly known as food stamps), WIC does not allow participants to buy whatever food they want, but instead provides vouchers or checks that can be redeemed at grocery stores for foods deemed particularly healthful, including whole-grain breads, beans, fruits and vegetables. Enrollment in WIC is limited to low-income pregnant and postpartum women, infants and children under age five because this population is particularly vulnerable to malnutrition. In Wisconsin alone, WIC provides food to more than 100,000 women and children a month.

Our fall semester class covers the history and administration of WIC and related programs, a discussion of poverty, and cultural competency exercises to prepare students for effective interactions with WIC clients. Each student also gets a small amount of money for a WIC-like shopping experience used as the basis for discussion. In January students travel to relevant locations in southern Wisconsin, talking with WIC staff and participants and integrating their findings for a final presentation to WIC staff in Wisconsin’s Department of Health Services. WIC director Patti Hauser and several of her staff serve as guest instructors for the course and facilitate access to key parts of the WIC program.

While participants join WIC for the food benefit, the program also provides or connects them with such public health services as vaccinations, basic physical exams, blood lead testing and early literacy initiatives. When students visit WIC clinics (where women and children apply to join WIC and receive health screenings and benefit checks) they get to see and talk with a diverse group of administrators, nurses, dieticians, translators and other professionals in addition to WIC clients. Visits to food pantries, soup kitchens, grocery stores and other food-related sites highlight how WIC fits into the bigger picture of food security.

We’ve run the course twice so far and intend to have a different emphasis each year. Last year we learned about an important—and resolvable—barrier impeding some clients from using their full fruit and vegetable benefit. It concerns how grocery stores price produce. If apples are $1.59 a pound and you have exactly $10, how many pounds can you buy? Some WIC clients either under-purchase or don’t buy apples at all rather than exceed the funded amount. Pete’s Fruit Market, a WIC-friendly vendor in south Milwaukee, addresses the problem by packaging produce in even-dollar amounts, a practice that could be made more widespread.

More recently we investigated a concern that surfaced last year, when some WIC clients reported that cashiers didn’t know what foods WIC clients were allowed to buy or were not well versed in processing WIC transactions. Through interviews and observation, students were able to confirm those reports and offer WIC staff the data they need to convince some large grocery stores to use the interactive, Wisconsin-specific cashier training WIC provides rather than generic materials produced at their corporate headquarters.

As close as this experience is to campus, this course and others like it can still teach students new things about seemingly familiar places. Says Sara Mutnick, a certificate student and WIC course alum who graduated in 2013, “I learned how not having the basic necessities like a secure home, a place to sleep and enough food to eat makes a really big impact on health.” With respect to completing her field experience in Wisconsin rather than somewhere more exotic, Mutnick says, “You don’t have to go that far to make a difference.”

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Support the Certificate

Field experiences can change a student’s life—but they cost students an average of $2,000, despite university subsidies. Please help students in need participate in these courses by contributing to an endowment for that purpose. You may donate here: http://ghi.wisc.edu/undergraduate-certificate/support-the-certificate/