



**Pharmacy schools
on university
campuses are
balancing various
options to deliver
the best solutions to
influence local and
global health.**



The Right Prescription for Internationalization

BY KAREN LEGGETT



“Pharmacists have potential for a large impact internationally, from clinical service development to procurement of appropriate medications to management issues. It’s time for pharmacists to be involved at a global scale,” says Stephanie Lukas, a graduate of the University of Iowa PharmD/Masters in Public Health program. Lukas now works in public health in Rwanda but her pharmacy education included internships, rotations, and residencies in Liberia, Kenya, and Mexico. Increasingly schools of pharmacy are offering such international experiences. The American Association of Colleges of Pharmacy now has a Global Pharmacy Education Special Interest Group (SIG) as well as a Global Alliance for Pharmacy Education. The SIG recently offered a webinar on preparing students for Advanced Pharmacy Practice Experiences (APPEs) in developing countries. In 2013 the International Pharmaceutical Federation Education Initiative launched its first report on the status and transformation of pharmacy education worldwide. That transformation to an increasingly patient-centered role for pharmacists is itself fueling interest in academic partnerships as well as student and faculty exchange opportunities.

EDITOR'S NOTE: *This article is the fifth in an occasional features series about academic disciplines internationalizing their curricula. The first article, "Storytelling—International Style," about journalism programs was published in the January/February 2014 issue; the second article, "All Smiles," about dental programs, was published in the July/August 2014 issue; the third article, "In Another's Shoes" about mental health counseling and psychology programs, was published in the November/December 2014 issue; and the fourth, "Global Health Matters, was published in the January/February 2015 issue.*

“A Harvard Executive MBA Program” for Pharmacists

The Skaggs School of Pharmacy at the University of Colorado has combined this interest in patient-centered pharmacy with the growing acceptance of online learning into its new International-Trained PharmD program, a pharmacy doctorate accredited by the Accreditation Council of Pharmacy Education (ACPE). “We want to be a Harvard Executive MBA program,” says Kari Franson, associate dean for professional education, anticipating only 10 students per year with the first graduates scheduled in 2017. Foreign students are expected to be practicing pharmacists who come to Denver for one month at the beginning of the program, followed by two years of online course work and ten months of clinical rotations in Denver.



“I have learned so much about patient autonomy. In the Middle East, we are accustomed to feeling we know what is best for you as pharmacists; no one tells you a patient has a right to choose something for himself.”

Students continue to work in their own jobs and may complete the program in three to six years on a full- or part-time basis. The Middle East is particularly interested in PharmD, and Skaggs promoted it at DUPHAT, the Dubai International Pharmaceuticals and Technologies Conference.

The first three students are Egyptian pharmacists working in Qatar, including Sara Mahmoud, who believes a PharmD from a U.S. institution will open doors professionally for her. “Pharmacists are not just dispensing individuals any more. We are the experts on medications. Clinical pharmacy has been shown to reduce costs, reduce hospital stays, and reduce mortality in general.” Her initial month in Denver included classes on communication, U.S. pharmacy law, and terminology as well as visits to retail pharmacies, clinics, and hospitals. Mahmoud says the training in patient communication has already improved her clinical skills: “I have learned so much about patient autonomy. In the Middle East, we are accustomed to feeling we know what is best for you as pharmacists; no one tells you a patient has a right to choose something for himself.”

Mahmoud will finish her online courses next year and spread her clinical rotations in the United States over two

years. Does she feel she is missing anything with lectures offered online rather than in person? Not at all. “I have an established job and career in a very good, high-standard facility. I don’t want to lose that. The online program is accredited and I don’t feel like I’m missing anything,” says Mahmoud. “The online lectures are more convenient; when I finish the slides, I e-mail my questions and the professors answer. The professors are very accessible and helpful. You feel like everybody wants to help you.”

Rotations in the International PharmD program meet the same required six-week placements in ambulatory care facilities, internal medicine, and community and institutional pharmacies as those for U.S. students. International PharmD students cover all tuition and fees, though some financial aid is available. Mahmoud calls the program an “eye-opening experience...I will be the phenomenal clinical pharmacist I hope to be.”

Rotating Globally

Many pharmacy schools including Skaggs offer fourth year students the chance to elect at least one overseas rotation. Dean Franson says about 10 percent of Skaggs students take advantage of these opportunities, often setting up their own international practice site or choosing a site where Skaggs already has contacts, including Australia, New Zealand, United Kingdom, Netherlands, or Costa Rica. Skaggs students are required to complete three rotations in the United States before going overseas and they are reminded to be flexible, as sites may not be finalized until a few weeks before a rotation begins. Skaggs maintains a partnership in drug development and clinical research with the University of Leiden in The Netherlands, as well as a six-week Spanish rotation in Costa Rica with Common Ground International. Students live with a Costa Rican host family, learn the pharmacy system in Costa Rica, and join an interdisciplinary team to assess public health risks and barriers to care in target communities. The University of Colorado has its own interdisciplinary clinic in Guatemala and the first pharmacy rotations are being offered there in the summer of 2015.

“Schools are really demonstrating that global health and outreach can expand to include pharmacy services,” says Franson. “Securing a safe supply chain and providing patients with information and care is important.”

At Drake University in Iowa, professor John Rovers says the College of Pharmacy and Health Sciences spent several months developing a rubric to qualify international clinical rotations in terms of safety standards, level of English language understanding, curriculum match between Drake and the foreign institution, and availabil-



Sara Mahmoud, from Egypt, is enrolled in the new International-Trained PharmD program at the University of Colorado's Skaggs School of Pharmacy.

ity of qualified preceptors who can oversee the student experiences. Drake established a committee to evaluate each proposed opportunity, because “these things do not always grow purposefully,” says Rovers, “they grow by interpersonal contacts.” Even if a partnership starts with a personal connection—as they typically do—an approved international rotation must offer a “purposeful educational experience with explicit goals, objectives, workload, and budget. It should be the college’s program, not Rover’s program, so you also have to think about succession.”

Since 1997 Drake has sent 125 PharmD students to 15 sites in nine countries, including Pravara Institute of Medical Sciences in India, Hillside Clinic in Belize, community pharmacies in Australia, the University of KwaZulu-Natal in South Africa, Princess Margaret Hospital in Canada, and various sites in Ecuador, France, New Zealand, and Tanzania. Drake prefers not to send students overseas alone. There could be as many as eight in a single group. Rovers says he finds growing interest among students for international experiences. “Students are generous, responsible, interested. They are looking for a way to make the world a little better.” Because he has spent a lot of time in Australia where pharmacists have relationships with pharmacists

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in Vietnam, Rovers says he is now beginning to assist the Hanoi University of Pharmacy with curriculum development—although no student exchanges are planned yet.

The goal at St. Louis College of Pharmacy is to send a third of its students on an international serving learning project or an APPE rotation. Professor Kenneth Schafermeyer says the college typically has an official agreement with a university, hospital, pharmacy, or nongovernmental organization (NGO) overseas. Internships for credit must also be approved by the Missouri Board of Pharmacy. Housing in the host country can be challenging. Schafermeyer says there may be hospital guest rooms, a youth hostel, hotels, or apartments.

In Bangladesh, Swaziland, and South Africa, St. Louis College pharmacy students work with local organizations to train mid-level health care workers on ways to improve patient adherence to HIV and tuberculosis medication



University of Buffalo pharmacy students in the Dominican Republic

“It’s important for us to be as open and willing to learn about alternative ways of doing things because there’s not always one best way. By sharing information, we can improve the profession.”

regimes. Schafermeyer says Swaziland has fewer than 50 pharmacists, so the college is working to train nurses and other community health workers to dispense medication.

In Portugal, St. Louis students worked with the International Pharmaceutical Federation to research and develop leadership programs for schools of pharmacy in Africa. Student Stephanie Tackett blogged that “in order for us to conduct research it was required that we take several different online trainings regarding social, behavioral, and ethical aspects of research.” The same program also brought students from Portugal and Hungary to the St. Louis campus where they visited community pharmacies, a hospital, a mental health facility, and Express Scripts. Portuguese pharmacy student Paula Batista visited a neighborhood pharmacy that specializes in delivering medication to patients with HIV. “The phar-

macists are constantly on the phone asking if patients are taking their medications,” she noticed. “Pharmacists are working on solutions like buzzers and reminders. The whole process on how drugs get to the patients is very interesting.” Batista says she is looking for ways to improve pharmacy systems back home.

St. Louis pharmacy student Shannon James chose to participate in a fourth-year rotation organized by the International Pharmaceutical Students’ Federation (IPSF). The Federation has 350,000 pharmacy student members in 84 countries. “I applied for Egypt two days before the revolution took place ... and found out I was accepted about two days after the revolution happened in January 2011.” James joined pharmacy students from Hungary, Portugal, the Czech Republic, and Poland for two weeks of pharmacy experience and two weeks of travel in Egypt. She shadowed a pharmacist at a large Egyptian pharmacy chain and also observed the 57357 Children’s Cancer Hospital in a poor neighborhood of Cairo. In a country with little private health insurance, James said Egyptian colleagues “had no idea what we were talking about when we asked how they process insurance claims.” But she also learned that the number in the hospital’s name comes from bank account

numbers where donors could contribute to a planned expansion, including housing for patients' families.

Albany College of Pharmacy and Health Sciences offers six- or twelve-week clinical rotations in Brazil, China, Switzerland, and Japan. A new rotation is available on a U.S. Air Force Base in Italy. In some of these rotations, students are actively involved in research—allopathic/homeopathic research in Basel, Switzerland; traditional Chinese medicine at Fudan University in Shanghai; lab work with natural plant extracts at Maruzen Pharmaceuticals in Hiroshima; fluorescence and polarized light microscopy at the University of Sao Paolo, Brazil. Albany College sends two students each year for a six-week rotation at Ewha Womans University in Seoul and two Ewha students come to Albany. There is also a shorter, cultural exchange program for 20 U.S. students on the Ewha campus. It is Jessica DiLorenzo's job as director of global initiatives to launch each new program and make sure it offers "enough health care and not just cultural immersion." She says her challenge is often convincing faculty about the value of such cultural competency for students at a professional school.

The University at Buffalo School of Pharmacy and Pharmaceutical Sciences has several opportunities for overseas rotations and other international experiences, beginning with two elective courses on the Buffalo campus: Global Health Outreach and Spanish for Pharmacists. The global health course focuses on such issues as HIV, maternal and fetal health, counterfeit medicines, and refugees. There were 19 students in the first class, including foreign students who shared personal experiences about the lack of access to diabetes supplies and the high cost of counterfeit drugs in their home countries. Clinical assistant professor Gina Prescott said a class on spirituality enabled students to share different perspectives on efforts to prolong life.

Since 2002 the University at Buffalo has had an HIV research collaboration with the University of Zimbabwe. In fall 2015 the first Buffalo pharmacy student will do a six-week rotation analyzing medicines in the Zimbabwe research lab.

Students Leading the Way

Two University at Buffalo students are actively working to expand such global opportunities. Sara DiTursi is a PharmD student who spent five weeks in a Taiwan program sponsored by the IPSE. DiTursi paid for her airfare and food; Taipei Medical University provided housing for seven exchange students from the United States, Singapore, Malaysia, France, and Serbia. They observed pharmacists at work, attended classes on Chinese medicine, and learned about a health care system in which everyone just

brings a "national insurance card to the pharmacy to be swiped with no exchange of cash." DiTursi came home with a new appreciation for how culture affects the way people view medicine. "Some patients who use Chinese medicine think it is completely separate from pharmacy medicines. They often don't know about drug interactions, which can happen even with Chinese medicine."

DiTursi also came home eager to begin organizing an actual pharmaceutical rotation in Taiwan, if not for herself, then for future students. That requires investigating preceptor training and requirements, structuring a rotation in different practice areas, and generating interest among students. DiTursi also became the Pan



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American regional media and publications officer for IPSE, managing a Facebook page, website, and quarterly newsletter about public health initiatives (<http://paro.ipsf.org/>). Another Buffalo student with a similarly strong interest in promoting overseas learning is Ciera Patzke, founder of Student Pharmacists for Global Outreach, now an officially recognized student organization at the University at Buffalo. The group is sponsoring at least one trip each year to the Dominican Republic or Honduras, one trip to underserved populations in the United States (so far Tennessee and Chicago), and a local outreach initiative in Buffalo.

One of the first trips organized by the student group went to Honduras. Nine first-, second-, and third-year pharmacy students partnered with a secular NGO, Shoulder to Shoulder, to meet patients in their homes. "We hiked to them, took their blood pressure, and completed annual or monthly check-ups," says Patzke. "I think it provided great quality but we hiked to five patient homes in a day and you want to reach out to so many more." During the post-trip meeting, Patzke said students discussed the need to utilize technology to make health communication more efficient. "Despite these countries being poverty-

stricken,” says Patzke, “everyone has a smartphone and we should take advantage of that.”

Patzke says the student group also wants to organize more interdisciplinary teams that include dental and nursing students from Buffalo as well as in-country health care providers. The greatest challenge has been getting pharmacists to accompany each group because of their personal and professional obligations at home. Someday, Patzke wants to be one of those pharmacists for at least one international trip each year, adding, “I want it to be part of my life, just not my entire life.”

Medical Missions

The short-term trips described by Patzke are typically referred to as medical mission trips and they are the most common overseas experience offered to pharmacy students, typically providing cultural immersion and some service learning. The most effective mission trips make a concerted effort to work with an NGO or clinic that provides continuity of care on the ground. At St. Louis College of Pharmacy, Kenneth Schafermeyer has led 21 Habitat for Humanity construction teams to Romania,



University of Buffalo pharmacy students in Honduras presenting information on prenatal care, including what over-the-counter medication would be safe for popular maladies like nausea, headache, and back pain.

Kelsey Japs and Erica Truong, both PharmD students at Drake College of Pharmacy, joined this year’s trip to the Dominican Republic. Seven health care providers saw 600 patients in a week. Japs did everything from measuring medication doses to providing fluoride treatment to children, taking vital signs and shadowing a physician’s assistant. The trip gave Japs experience working as part of a global health team and running a pharmacy in a resource-limited area, especially in a tropical climate where there might not be refrigeration to store certain medications. She believes international travel is the best way to see all the factors that contribute to health—“financial restrictions, transportation—there is no better way to see all that in play.”

Truong responded to a professor’s e-mail seeking applicants for the mission trip to the Dominican Republic, finding it a good opportunity to bond with fellow classmates and make a small contribution. She discovered the challenge of cross-cultural communication even when interpreters were available to speak with Haitian refugees. “Translation was like a game of telephone. The message changed slightly when Haitians spoke Creole and it was translated to Spanish and then to English.” She did appreciate the “little light or look in patients’ eyes when they felt they were getting attention or being taken care of.” Now Truong, a second-generation Vietnamese, would like to create a pharmacy rotation for herself in Vietnam or elsewhere in Asia.

At the University at Buffalo, Prescott works to make sure even short trips offer “less vacation and more understanding of the ongoing issues of global health.” She speaks with students about selecting drugs for a particular trip. “I focus on medication safety because we give medicine in plastic bags when there are lots of children around. We write in Spanish, but some patients can’t read. We also have to pay attention not to take medicines that require follow-up.” And after all that, patients “have to pay for everything associated with their care and yet they are gracious and appreciative.

At St. Louis College of Pharmacy, Kenneth Schafermeyer has led 21 Habitat for Humanity construction teams to Romania, Guatemala, Costa Rica, and Poland, where pharmacy students learn “there is more to health care than prescriptions because affordable, decent housing is like a vaccine.”



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Albany College of Pharmacy generates interest in its alternative spring break with such on-campus events as a foreign film festival and a special day when 30 students win free passports. There are two- or three-week for-credit travel courses available in Senegal, Belize, Costa Rica, and other Central American sites. The trip to Belize is preceded by a full-semester course on campus that focuses on tropical diseases, health clinic skills, and preparing educational pamphlets to share with Belizean patients. Before the trip to Senegal, students travel to New York City for an introduction to African art and a visit to Manhattan’s Little Senegal.

Students do learn a little about medicine but a lot is cultural. It brings the humanistic part of medicine back.”

The University of the Incarnate Word’s (UIW) Feik School of Pharmacy in San Antonio, Texas, takes a team of physicians along with students in pharmacy, nursing, and optometry to Oaxaca, Mexico, for eight to ten days each summer with Los Quijotes Ambassadors of Health, an arm of the university’s Sisters of Charity. Students take an elective course in the spring to learn about cultural traditions, educational and political systems, and health care practices. Assistant pharmacy professor Russell Attridge believes the collaboration between nursing and pharmacy enhances communication with other professions later and translates to improved patient care.

The Corporate Connection

UIW also has an unusual and well-established three-pronged partnership in Brazil with both a pharmacy school and a pharmaceutical company. It started when UIW’s Brazilian pharmacy professor Marcos Oliveira began looking for an academic partner with a similar faith-based mission and complimentary programs. He identified

Pontificia Universidade Catolica de Parana (PUC-PR), a private Catholic university, and the Brazilian generic pharmaceutical company Prati-Donaduzzi. “I saw that Brazil had a growing need to engage in patient care. America had moved away from industry but we hadn’t closed the door and our students had difficulty seeing how they could engage with industry. We had complementary strengths.”

PUC provided a grant to cover six-week student exchanges in both directions. Faculty members also go back and forth. The Brazilian students rotate to acute care hospitals, a Veterans Administration facility, and retail pharmacies. U.S. students work in the pharmaceutical company, often completing significant research. One student wrote a protocol for a phase three clinical trial; another redesigned a software system that monitors for human contamination of raw medical products. In return, the Brazilian company also receives assistance understanding U.S. visa regulations and processes at the U.S. Food and Drug Administration. Dean Arcelia Johnson-Fannin believes other pharmacy schools in Brazil are eager for similar American partnerships now that the Brazilian government has mandated a focus on clinical rather than industrial pharmacy.



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Oliveira is especially excited by a new project that creates virtual teams of Brazilian and American pharmacy, business, and engineering students to think about civic-minded, innovative products or services for people with diabetes. There are four to ten students working virtually on each team. Four finalists will be selected in fall 2015 with students and faculty at both institutions voting on the winner. There will be a plaque and bicycles for the winning team (physical activity being especially important for diabetics)—and possibly the beginning of a patent application process.

Welcome to the United States

UIW welcomes pharmacy students from the University of Navarra in Spain and the Lebanese American University for clinical rotations in San Antonio or Houston. The University at Buffalo has an exchange program with Chongqing Medical University in China. Buffalo faculty members teach in the pharmacy school in Chongqing with a few Chinese students expected on the Buffalo campus in 2016. They are expected to complete their PharmD

in Buffalo but must first pass pharmacy entrance and TOEFL language exams.

St. Louis and Skaggs both participate in the Pharmabridge program initiated by the International Pharmaceutical Federation (FIP) to strengthen pharmacy services and education in developing and transitional countries. Between 2002–2012, 41 pharmacists from Egypt, Ethiopia, Ghana, India, Nepal, Nigeria, and Peru have had four-week training visits to Canada, Finland, the United Kingdom and the United States. Dr. Olubukola Oyetunde came to St. Louis College of Pharmacy from the University of Lagos in Nigeria to observe faculty and visit community pharmacies and hospitals. Oyetunde said she hadn't thought about "curriculum design before coming here, but I've discovered the key to the doctor of pharmacy degree is the curriculum." Most pharmacy schools in Nigeria offer only a bachelor of pharmacy. Oyetunde believes her university may become one of the few to offer a PharmD.

St. Louis College was chosen through a competitive grant from the American International Health Alliance to assist in the development of a pharmacy technician training program at Nelson Mandela Metropolitan University in South Africa. The head of the pharmacy department in South Africa and a South African lecturer talked with U.S. faculty about distance learning, development of curriculum and instructional materials, and training of preceptors. Schafermeyer says South Africa needs about 2,500

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additional pharmacy technicians each year to deliver care to more than 5 million patients with HIV and AIDS. "It's clear," he said, "that the College has the resources, expertise and interest to contribute to the success of this international collaboration...Our NMMU partners are outstanding professionals and are very dedicated to expanding access to healthcare services in Africa." Previously, Schafermeyer and two St. Louis College pharmacy students also worked with the Swaziland Ministry of Health to help establish a similar pharmacy assistant program at Southern Africa Nazarene University in Manzini, Swaziland.

Chinenya Onodugo is a Nigerian pharmacist in the Pharmabridge program at Skaggs School of Pharmacy. During his month in Denver in spring 2015, Onodugo was eager to learn about access to patient medical information, electronic prescriptions and medicine storage and distribution. He has had discussions with infectious disease pharmacists about antibiotic stewardship programs to reduce resistance to antibiotics, a protocol he wants to take home to Nigeria. "All the hospitals we visited had functional antibiotic stewardship programs and clinical pharmacists dedicated to these antibiotic management programs."

The conversation comes full circle to Stephanie Lukas in Rwanda. She believes international pharmacy work must be organized without causing interruption in the current health care setting. "We have to be really careful that we are doing international experiences that are a benefit both to us as visitors and the community. She mentioned a deworming clinic by University of Iowa students that is based on an ongoing relationship with schools in a Mexican community, Rotary International, and the university. "This is a good way to provide short-term health services that are discreet and don't interrupt the existing health care system." Her clinical rotation in Liberia reminded her that the country's health system and policies were in the early stages of development, but "there is a lot of passion, intelligence, and people who want to see a strong health system. The more I travel internationally, the more I realize people are the same and want a basic level of the same things."

IE

KAREN LEGGETT is a freelance writer in Washington, D.C. Her last article for *IE* was "In Another's Shoes," about internationalizing mental health programs, which appeared in the November/December 2014 issue.

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