

Virtual Mentor

American Medical Association Journal of Ethics

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Virtual Mentor

American Medical Association Journal of Ethics
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From the editor

From medical school to mission: the ethics of international medical volunteerism

During college I spent three weeks volunteering at a clinic in a small Haitian town. The clinic treated mostly patients with burns, a ubiquitous problem in the town due to the charcoal pits used for cooking and the kerosene lamps that would explode in people's hands if they were not filled properly. My job was to clean the wounds, apply salve and bandage the limbs of these patients.

The man in charge of the clinic had lived and worked in the community for almost 30 years. In addition to providing the only medical care in the neighborhood, he also gave food to those who needed it and built homes made of concrete, a real luxury to those used to only wood and thatch. He had not, however, attended medical school, and what he did in Haiti would be illegal in the United States.

I had mixed emotions about my experience in Haiti. Although I was grateful for having had the opportunity to learn more about medicine in a developing country, I was not completely sure whether I had helped anyone but myself. It has now been eight years, and I still do not know for sure.

Over the past decade, increasing numbers of medical students and residents are doing rotations and electives abroad. The most recent survey of U.S. medical school graduates estimates that 27 percent of them have had international experience during their four years of medical school [1], up from 6 percent in 1982 [2]. Impressive as it is, this number does not take into account people like me who travel before medical school, medical students who travel outside of official medical school avenues and residents who do electives abroad.

Despite the large numbers of people participating in experiences abroad, it is only recently that the medical community has started to think about the ethical issues and consequences of these cultural experiences. How should we prepare people for what they will see and do in these countries? Who are we helping most when we work abroad?

The articles and commentaries in this issue of *Virtual Mentor* were selected to explore the many ethical issues that arise from international medical volunteerism. The clinical cases illustrate scenarios that individual medical students and residents face, and they also demonstrate the relationship between these individual dilemmas

and larger issues in global health. In the first clinical case, Drs. Richard Currie from the University of British Columbia and Ronald Pust from the University of Arizona discuss responsible drug donation and the roles that physicians working abroad should play in their host countries.

In our second case, a student is asked to perform tasks that he would not be permitted to perform back in the United States. In their commentaries, Dr. Naheed Abbasi from New York University Medical Center and Michael Godkin from the University of Massachusetts suggest how a student should respond in such a situation. In the third case, Dr. Robert Orr, a consultant in clinical ethics at the Center for Bioethics and Human Dignity, comments on a scenario in which a student is restricted in the type of counseling he is able to offer patients by the ideology of the funding organization. Dr. Orr examines not only right of conscience but also the professional, practical, clinical and cultural obligations that should guide decision making in a situation such as this.

The articles that follow expand upon the themes highlighted in the clinical cases. Lauren Wasson, a medical student at Columbia University College of Physicians and Surgeons, examines three journal articles that report on how international rotations and electives have been shown to influence career choices and patient interactions among U.S. physicians.

The medical education section brings together three commentators with different perspectives on how students can prepare for international experiences and what they take away from them. Justin List, a second-year medical student at Loyola's Stritch School of Medicine in Chicago and last month's *Virtual Mentor* theme editor, reflects on his recent time in Kenya and how that experience will make him a better physician in the United States. Next, Dr. Rebecca Hope, a resident at the Royal Cornwall Hospitals in England, emphasizes the importance of understanding the needs of the foreign community you are visiting and recognizing that your most important contribution may be education or even friendship. Finally, Dr. John Tarpley and Margaret Tarpley from Vanderbilt University School of Medicine offer suggestions on how students can prepare for and make the most of their overseas elective experience.

This month's clinical pearl, by AMA Institute for Ethics fellow Sarah Maitre, summarizes the diagnosis and treatment of cellulitis, a common problem in developing countries. In the health law section, Tara Leevy, LLM, a health law fellow at Loyola University Chicago, explains how the World Trade Organization's policy on international patents (the TRIPS agreement) affects developing nations' access to life-saving medications.

Josh Ruxin from Columbia University's Earth Institute writes about the Global Fund to Fight AIDS, Tuberculosis and Malaria in a policy forum article, recounting some specifics about the beneficial impact the fund has had on worldwide health since its inception four years ago, despite its lack of full funding. In the second policy forum,

Dr. Egbert Sondorp and Olga Bornemisza, both at the London School of Hygiene and Tropical Medicine, ask us to consider the brutal dilemma facing physicians who care for refugees in Sudan and Uganda—do they apply the principle of equity, distributing available resources equitably to all, or do they provide the minimum resources needed for survival to as many as possible but not to all? In the medicine and society section, Dr. Edward O’Neil, Jr. speaks to the medical profession’s obligation to work towards social justice by volunteering in developing countries.

In two op-ed articles, Mary White and Katherine Cauley from Boonshoft School of Medicine at Wright State University and a group of internists from Tulane University led by medical student Craig Conard caution readers about the pitfalls of improperly organized international electives and the hazards of “serving” for the wrong reasons.

In the medical humanities piece, Jennifer Kasten, a medical student at Columbia University College of Physicians and Surgeons, invokes the philosophy of Albert Schweitzer as an inspiration for today’s physician—be a good doctor by being a good human being. And in their historical essay, AMA staff members Ololade Olakanmi and Philip Perry trace medical volunteerism in Africa from the medical missions of the mid 19th century to the origins of NGOs in the 1970s and the current burgeoning interest in global health.

One of the most vivid of the many lasting memories I have from my time in Haiti is the swarms of people, from children to grandmothers, sitting in the marketplace selling secondhand American goods out of plastic garbage bags. From these bags came everything from toothbrushes and socks to old magazines and batteries. On certain days, the bags and the people selling from them stretched for block after city block.

The bags were called “Kennedy bags” for the president who had started the program as a way for Americans to donate to our needy neighbors to the south and encourage goodwill in a country not too far from Cuba. Somewhere along the way, however, JFK’s good intentions became corrupted, and middlemen began acquiring these bags, donated from U.S. churches and schools, to sell to the poorest Haitians who then sell to each other. When I visited the area more than 30 years after the initiative began, commerce surrounding Kennedy bags was still one of the most common means of employment in the city.

My experience in Haiti was eight years ago, but a day rarely passes that I do not think about some aspect of what I learned there and the complicated ethical questions that daily life presented. Did I help those patients or were my good intentions distorted like those of so many others? My experience and my questions have affected my choice of medical school, the courses and electives I took there and the activities to which I have devoted my time since. It also influenced the kind of physician I am and will be by shaping how I interact with my patients and how I see our health care system and its relationship to the rest of the world.

That is why I am proud to be involved in this issue of *Virtual Mentor*, the first but I hope not the last devoted to global health. The clinical commentaries, articles and reflections in this issue helped me to put my experience in Haiti into perspective and motivated me to continue my own commitment to global health. I hope they do the same for you.

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Clinical case

Pragmatic principles of pharmaceutical donation

Commentary by Richard Currie, MD, and Ronald Pust, MD

Dr. Green, a family practice resident, participated in a program sponsored by his hospital that sent physicians and medical supplies to an urban clinic in Haiti for two weeks every summer. One year, on the last day of his trip, Dr. Green saw a patient in the clinic who had been seen earlier in the week by one of his Haitian colleagues. Reviewing the patient's records, Dr. Green saw that the doctor had put the patient on five different antibiotics to treat his cellulitis. The patient reported that the previous doctor told him the reason for so many pills was that he "wasn't sure which one would work." Each of the medications came from the stock brought in by Dr. Green and the other visiting physicians. The patient had come in that day because of diarrhea that Dr. Green suspected was a result of the inappropriately prescribed antibiotics. In addition, the patient's cellulitis had not improved markedly since his visit earlier in the week. Dr. Green put the patient on the appropriate treatments for his complaints and sent him home.

After the visit, Dr. Green reviewed the clinic records and found that patients were routinely placed on multiple antibiotics, usually unnecessarily. In addition, the number of cases of antibiotic-resistant organisms had been steadily rising since Dr. Green's medical center began donating medications to the clinic five years before.

Commentary

Dr. Green is faced with a dilemma: the antibiotics that he donated to the Haitian clinic have been used inappropriately by a local physician, and patient care has been compromised as a result. On review of clinic records he uncovers a more extensive pattern of harm, including recurrent examples of inappropriate prescribing and the subsequent development of drug resistance in the community. For Dr. Green, now approaching the end of his trip to Haiti, the discovery is surely disheartening. Should he have foreseen the unintended consequences of his donation and taken steps to avert it? Has he neglected an educational dialogue with his Haitian colleagues? Was it irresponsible to bring these unfamiliar new medicines to Haiti?

Because medical students and physicians are increasingly volunteering for short-term projects abroad, the questions raised by Dr. Green's dilemma seem increasingly prescient [1]. The practice of clinical medicine is, in theory, a universal language, so it is tempting for Dr. Green to assume that his donation of time, knowledge and Western medicine will always be useful and welcome, irrespective of how limited

the supply, how relevant his skill set or how fleeting his visit. These are assumptions born of altruism and grounded in the principle of beneficence, and, as such, Dr. Green's intentions are commendable. This case reminds us, however, that in our zeal to address unmet needs we may, at times, unwisely neglect our primary duty of nonmaleficence [2]. While enthusiastically preparing for his trip to Haiti, Dr. Green would have been well served by a simple reminder: First, do no harm.

Beware the medical student tourist: a framework for principled action

In addressing the issue of ethical drug donation, it is helpful to consider Dr. Green's scenario in a broader framework. An international volunteer is, first and foremost, a guest in the host country [3]. Back at home, when invited to participate in patient care, we do not begin by directing clinical management in the absence of input from those we aim to treat. Ideally, we first listen, then we counsel and, ultimately, we respect the autonomy of our patients. Our hosts in the developing world are worthy of the same respect. A welcome and productive volunteer is one who is mindful of the pre-existing customs, wishes and expectations of their hosts. Who invited me? For how long? What is my role during this time?

There are, we believe, some general perspectives that lead to principled, purposeful action in any international humanitarian collaboration. As a guest in the host country, a medical volunteer may aspire to serve in one or more of four primary roles: colleague, coach, critic and citizen. The volunteer who is available for only a few weeks may do well as a clinical colleague, learning from local counterparts while serving alongside them within the existing health care framework. As knowledge, relevant skills and mutual trust develop, the volunteer may become a coach and cheerleader, gradually making the transition from learner to teacher. Eventually, over longer commitments, the lifelong learner earns the right to ask critical questions, challenging his or her collegial equals in the mutual pursuit of systemic improvement. Ultimately, if such systemic changes are to be forged, the role of world citizen must emerge. When the individual guest and host counterpart join minds and hearts to advocate change, only then does sustainable development become a possibility. Let's use this framework to address Dr. Green's drug donation dilemma.

Drug donation and access to essential medicines

What would motivate Dr. Green to collect and carry these newest antibiotics to Haiti at a cost of time, effort and, perhaps, personal expense? More than likely his decisions are influenced by his prior experiences in that country, fueled by a growing global awareness of the scarcity of pharmaceutical resources in developing nations. According to the World Health Organization (WHO), 60 percent of deaths in the developing world are attributed to diseases that are treatable in industrialized countries, a sad consequence of the fact that 2 billion people—one-third of the world's population—do not have any regular access to essential medicines [4]. As we critique Dr. Green's donation, we do not wish to distract from these alarming statistics. We believe there is an ethical mandate to provide equitable access to life-sustaining therapies to the world's poor and marginalized populations. Prohibitive

drug pricing, indiscriminate patent protection and the disproportionate allocation of research funding for categories of drugs that maximize profits all demand immediate collective action by advocates worldwide [5]. We recommend specific overviews of these subjects [4, 6-8]. The issue here is not whether drugs are needed in developing nations, but rather which drugs, where and from whom?

When poorly planned or delivered, the donation of pharmaceuticals can have significant adverse consequences for recipients. At a national level, donations of large quantities of inappropriate or expired medications can burden the recipient with the unwelcome task of sorting, storing and properly disposing of unusable donations, necessitating the regrettable investment of scarce money and manpower. In a review of drug donation practices in Bosnia and Herzegovina between 1992 and 1996, Berckmans et al. estimated that 50 percent to 60 percent of all donations (17,000 metric tons) were unsuitable for use, with an associated disposal cost to in-country agencies of \$34 million [9].

Smaller private donations can be equally perilous. As Dr. Green has discovered, patient care can be compromised when donated pharmaceuticals are irrelevant to the local disease pattern, are poorly labeled or are unfamiliar to community clinicians. Such donations also impact the local health care delivery model negatively by altering prescribing habits and thereby undermining existing national drug policy. The uncoordinated introduction of newer, more expensive medications—erroneously assumed to be superior by recipient and donor alike—compromises government efforts to develop a pertinent, affordable and sustainable drug supply system.

To address the growing problem of inappropriate, burdensome and counterproductive drug donation, WHO now has guidelines for ethical donation [10], based on four core principles. The donated product must be of maximum benefit to the recipient, addressing a clearly expressed need directly relevant to local disease prevalence. The recipient's authority must be respected; donations must comply with existing drug policies. Where a national drug policy does not exist, donors are referred to the WHO's Model List of Essential Medicines, an international consensus list of efficacious, safe and cost-effective medicines for priority diseases [11, 12]. There must be no double standards in drug quality: medications that are unacceptable for use in the donor country should not be sent abroad. Lastly, effective communication between the drug donor and recipient is essential to appropriate distribution and clinical use. The highlights of the WHO's key guidelines for drug donations are:

- All drug donations should be based on an expressed need and be relevant to the disease pattern of the recipient country.
- All donated drugs should be approved for use in the recipient country and appear on the national list of essential drugs, or, if a national list is not available, on the WHO Model List of Essential Medicines.
- After arrival in the recipient country all donated drugs should have a remaining shelf life of at least one year.

- All donations should be labeled in a language that is easily understood by health professionals in the recipient country; the label on the container should include the generic name, batch number, dosage form, strength, name of manufacturer, quantity, storage conditions and expiry date.
- Recipients should be informed of all drug donations that are being considered, prepared or actually under way.

Could this scenario have been avoided?

Let us assume that Dr. Green's residency program has established a sustainable, mutually productive program, embedded in a long-term coordinated effort incorporating professional Haitian input. If these visits are truly collaborative, one would expect local Haitian counterparts to define which drugs would be useful in Haitian health care. These decisions would be influenced by evidence-based international protocols, such as those of WHO's Integrated Management of Childhood Illnesses [13, 14] or Model List of Essential Medicines, supported by continuing medical education programs provided via the Haitian Ministry of Health in collaboration with progressive, locally respected nongovernmental organizations [11, 15-17]. In such a setting of planned, sustainable health care development, any role for Dr. Green's program or its pharmaceutical donations would be defined by Haitian host counterparts.

The imperative to provide urgent access to life-sustaining medicines in developing nations is compelling, but should not be viewed as an open invitation for indiscriminate donation. The WHO Guidelines for Drug Donation [10] can inform both Dr. Green and his hosts. Are his drugs the most appropriate to treat local diseases [12]? Is he responding to a specifically defined need? Does his donation comply with the existing national drug policy? We can only speculate as to the overall content and context of Dr. Green's donation, but based on the confusion generated among his Haitian colleagues, it seems apparent that at least some of the key criteria for an appropriate, ethically responsible donation were not fulfilled. In retrospect, the resulting negative clinical outcome and the emergence of antibiotic resistance seem regrettably avoidable.

Take the long view

Dr. Green is an educated clinician, an altruistic volunteer and a welcomed guest in Haiti. As such, he has an ethical responsibility to conduct himself in a fashion that respects and facilitates the autonomous development of the local health care system, while honoring his primary duty of nonmaleficence. In preparing to serve abroad, Dr. Green, like any volunteer, should first examine his potential roles as clinician, coach, critic and world citizen and then plan to serve in this context with his Haitian hosts. Rather than rushing to the rescue, we would all do well to internalize the prayer often attributed [18] to Archbishop Oscar Romero (1917-1980), who was martyred in his native El Salvador: "It helps, now and then, to step back and take the long view... We are workers, not master builders, ministers, not messiahs. We are prophets of a future that is not our own" [19].

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Clinical case

Limits on student participation in patient care in foreign medical brigades

Commentaries by Naheed Rehman Abbasi, MD, MPH, and Michael Godkin, PhD

Phil Denton is a third-year medical student at a northeastern university. During the summer between his second and third year, he was selected to go to El Salvador with a team of surgeons who staff a rural clinic for two weeks twice a year.

Phil thought that his main activity would be shadowing the surgeons. The clinic, however, was extremely busy with the doctors seeing hundreds of patients a day. On Phil's first day, one of the surgeons gave him a white coat and told him to introduce himself as "Dr. Denton." He saw patients by himself and, with his fairly fluent Spanish or through translators, gained their consent for surgical procedures. In the operating room, after a brief introduction to suturing and sterile technique, Phil was given the responsibility of prepping the patients before surgery and suturing the incisions afterward. The surgeons were usually out of the room while he performed these functions.

At first, Phil was thrilled to be getting such experience at so early a stage in his training. In the United States, that kind of responsibility was usually reserved for second- and third-year surgery residents. But after a patient he had prepped for surgery returned with a wound infection, Phil looked at the situation differently.

He asked one of the surgeons at the clinic if it was appropriate for him to be performing functions on patients in El Salvador that he would not be allowed to perform on patients in the United States. The surgeon replied, "Relax, the rules here are different than at home. No one tells us what to do here. Besides, if you didn't help us out, we wouldn't be able to see as many patients and some people wouldn't get the help they need. Is it better for the patient to get less expert care or no care at all?"

Commentary 1

by Naheed Rehman Abbasi, MD, MPH

Few would contest the claim that the rise in popularity of medical volunteerism is commendable and represents a heightened awareness of health care inequities, both domestic and international, on the part of medical professionals. Cases such as this one illustrate common challenges facing physicians-in-training who are working in

international settings, and they should stimulate careful consideration of ethical, legal and practical aspects of care provision in international contexts.

Physicians and medical trainees volunteering in international developing communities commonly encounter environments starkly different from those of their native countries. Challenges facing these caregivers are myriad: linguistic, cultural and gender barriers in patient-physician communication; a paucity of health care resources and basic supplies; diverse and unfamiliar conceptions of disease and health; low levels of literacy; and confrontation, usually for the first time, with abject poverty that limits the ability of patients to prioritize and dedicate resources to health problems. Coming face-to-face with these significant barriers is a necessary but often uncomfortable part of the volunteer physician's experience. Added to these challenges are the struggles of trainees who must confront the limits of their abilities or confidence while serving patients who are naive about their caregivers' uncertainty and often possess blind faith in doctors and medical personnel.

Phil Denton's experience is one to which many physicians and medical students can relate, yet the specific circumstances are made more challenging by their international context. Students commonly report discomfort with being identified as "doctor," a term which elevates them to the level of more experienced colleagues and may unfairly raise patient expectations regarding their abilities and knowledge base. Nearly every medical trainee can recount instances of performing procedures for the first time on a trusting patient in contexts of minimal supervision. Asking for supervision in such instances can be awkward or even impossible, since heavy clinical volume and power hierarchies may make more senior physicians inaccessible. In settings with ample resources, challenges like these are remediable through actions as simple as yelling for help. The assumption that help will be available in an instant, and the very construct of calling a "code," can be viewed as luxuries of medicine in developed countries.

It is a cruel irony that medical trainees working in developing communities may find themselves elevated to levels of heightened responsibility precisely at the times when their potential errors may be the least remediable. The arguments Phil Denton confronts that "rules here are different than at home" and "if you didn't help us [no one would]" are uncomfortable to the trainee and cannot be justified on ethical grounds. In practice, however, arguments such as these are used on a daily basis to justify delivery of medical services in developing countries by students, trainees or volunteers. Countries in which voluntary services are commonly provided generally lack specific laws regarding scope of practice or supervision for international medical volunteers, and no international code of medical ethics exists to guide the specific practices (in challenging circumstances) delineated in the current case.

The American Medical Association's *Code of Medical Ethics* articulates several opinions that relate to the current case. Opinion 8.087 regarding medical student involvement in patient care states that "students and their supervisors should refrain from using terms that may be confusing when describing the training status of

students” [1]. By this standard, Phil Denton’s supervising physicians misrepresented him in a manner that was both untruthful to patients and uncomfortable to Phil. Opinion 8.088 regarding resident physicians’ involvement in patient care states that “training must be structured to provide [trainees] with appropriate faculty supervision... with graduated responsibility relative to level of training and expertise” [2]. Clearly, such supervision was not available to Phil Denton, yet the extreme circumstances of the case make transgression from ethical guidelines difficult to critique.

Inasmuch as the overarching purpose of both legal and medical ethical guidelines is and should be the protection of patient and physician safety and well-being, it is unclear how lines of responsibility should have been delineated for and by Phil in the current case. That Phil should have refused to participate in tasks which he believed he was unqualified to perform independently, such as skin closure after surgery, is a valid perspective, but it is also valid to argue that Phil’s supervising physicians were entrusted with (and failed) the charge of supervising him more closely and helping to delineate tasks which a student at his level could reasonably and safely perform. In the United States, Phil’s responsibilities and supervision in the operating room setting would have been quite different.

The very existence of the AMA’s *Code of Medical Ethics* as a living and evolving corpus to guide the ethical practice of medicine is an invaluable asset to the global community of medicine. Whether one agrees or disagrees with specific aspects of the *Code* is not as important as the concept that the medical community can and must preserve its own professionalism. Codes of medical ethics can and should be debated and revised over time in response to new demands of a complex world.

The challenge of adherence to ideal ethical guidelines in emergent or extreme situations such as those illustrated by this case is real, however, and deserves greater scrutiny. Debates generated by such attention may result in the formulation of specific legal and ethical guidelines to direct and facilitate the practices of international medical volunteers.

Greater awareness of the challenges and rewards facing medical volunteers must also be stimulated by physicians, nongovernmental organizations and the lay press to prepare future generations of health care volunteers for the complexities of their chosen roles. Physicians today are both health care professionals and participants in a global civil society, and a careful analysis of both the demands and limitations facing medical volunteers is critically necessary.

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Commentary 2

by Michael Godkin, PhD

When foreign students and doctors provide medical care in a host country they encounter a spectrum of ethical dilemmas intensified by the addition of foreign medical personnel. Not only do the host institution's standards and the personal and professional standards of local clinicians influence patient care, but the standards of the foreign brigades do also. Added to this is the likely burden of a cultural divide that can lead to false assumptions and misunderstandings between caregivers and between caregivers and patients.

On one hand, the ethical boundaries of this scenario are quite clear compared to many of those that cause real-life quandries for medical students. The ultimate responsibility for the appropriate care of patients in this case would appear to lie with the brigade physician because he has assumed primary responsibility for the patients. As an aside, one might question how this assumption of authority originated; most likely not from a deliberative and collaborative process between the hosts and the foreign volunteers as a partnership of equals.

On the other hand, students have a responsibility to refuse to perform procedures that they do not think they are trained or competent to perform or perhaps are just uncomfortable performing. In this scenario, the comfort level or competency of the student, Phil, is not known, nor is the content of his "introduction" to prepping and suturing—or even how many patients he had seen independently and successfully. We do not even know whether Phil was responsible for the infection or whether it was related to conditions in the surgical suite. What is important, aside from possible negative consequences for the patient, are the potentially devastating emotional consequences for the student. A colleague recently shared with me that he has regrets

to this day about a procedure he performed independently while in Guatemala as a fourth-year medical student.

Phil could have told the doctor that he was unable to see patients independently until he had received more training and supervision during the treatment of his first few patients. While this premise would apply both at home and abroad, I think students need to be especially careful not to “experiment” when they are guests in another country. Sometimes this boundary is not always clear. In response to this case, a colleague who was the patient safety officer at the University of Massachusetts, commented that students are frequently “at the edge of their comfort zone” and that learning takes place because students have new experiences and increase their ability to act independently. We both agree, however, that if a student expresses discomfort at performing a procedure, it is the responsibility of the attending to supervise the student initially.

When the senior clinician is from the host country, I think it is more complicated, in that he or she may be more likely to overestimate the skill set of the foreign student, being unfamiliar with the training the student has received. In such instances U.S. students have to take the primary responsibility to act within their current training boundaries.

While there may be greater likelihood of a case such as this one occurring abroad, I am reminded by one medical student that the exact scenario has occurred during her medical training here. Another student said, “I think a lot of medical school involves performing tasks that you are not qualified for or adequately trained to do.”

There will be some occasions when it is appropriate for a student to go beyond his or her skill set, especially if a life is on the line and there is no physician around. Just such a situation was experienced by one of our senior students in Africa. She was helping transport a patient by pick-up truck when he suddenly went into respiratory distress and was close to failure. The accompanying nurse was 19 years old and had training equivalent to that of a first-year medical student. Realizing that the nurse was looking to her to act, our student proceeded to nebulize the patient and gave him steroids and the appropriate antibiotic. Her treatment was successful. A U.S. student is unlikely to be in a similar situation here at home, so at times it is appropriate for a student to function differently abroad because of a paucity of adequate resources. Although she had not encountered such a patient before, the senior student had a critical base of knowledge, ability and problem-solving skills to go beyond her training but not beyond her competency level.

Two key tenets: competence and non-experimentation

The tenets of competence and non-experimentation are cornerstones of a standard of appropriate caregiving. Students have to feel competent in performing a procedure and judge that they are not experimenting on a patient in a way that could cause harm. Added to that standard is the need for full disclosure, whereby, whenever

possible, students abroad inform patients of their level of training and disclose whether they have performed a procedure before.

How can we as educators responsible for placing students abroad prevent them from providing care for which they are not trained? Adequate preparation by medical school faculty is paramount. This involves the careful selection of brigades in which it is appropriate to include students. Phil Denton's supervisor, the surgeon, has a pejorative attitude toward his hosts, barely masked in his statement that "the rules are different than at home. No one tells us what to do here." A student once told me that she thought the U.S. physician on her brigade was "experimenting" with unorthodox procedures.

In addition, medical schools need to prepare students adequately. We currently do not have a code of ethics at the University of Massachusetts specific to student electives abroad, but medical schools should probably adopt one that includes specific scenarios like the vignette in this article. Such a code or at least the case scenarios could then be used in faculty preparation of students for work abroad, whether it be as part of a course on global health or a more informal setting.

Acknowledgment

My thanks to Eric Alper, MD, at the University of Massachusetts Medical School for his thoughtful comments on his experiences abroad and on this case.

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Clinical case

Relief organizations with counseling restrictions

Commentary by Robert D. Orr, MD

Jerome was spending an elective month working in an AIDS clinic in Malawi where his work entailed counseling people in the community on the prevention of HIV transmission.

One day, halfway through his elective, Jerome's supervisor sat in on a counseling session between Jerome and a 15-year-old girl from the community who had just tested negative for the virus. Jerome spent much of his time educating patients on the proper use of condoms, and he was encouraging her to insist upon their use, even when her partner tried to dissuade her. In Malawi's patriarchal society, this course is often difficult for women to follow, but Jerome believed that empowering women to insist on condom use was the most effective way to keep the community healthy by decreasing the transmission of HIV.

After the girl left, Jerome's supervisor mentioned to him that the American organization that funded the clinic required that the counselors emphasize abstinence rather than birth control as the best method of preventing the spread of HIV. Thinking about it later, Jerome felt conflicted about what to do. Although he would have liked to comply with the ideology of the clinic's funding organization, he believed that advising abstinence was not usually practical in this particular culture. He found it difficult enough to convince people to use condoms and was worried that if he stressed abstinence his young patients would stop listening to him and might endanger their own lives.

Commentary

Professional's right of conscience. Jerome's dilemma raises several issues that come from different perspectives. Let's first look at a professional's right of conscience. There is a growing recognition that a physician may rightfully decline to participate in a procedure or professional encounter that he or she finds morally objectionable, e.g., participation in an abortion or removal of life support from a patient with a reversible illness. This is a negative right of conscience. But a positive right of conscience also exists—the right to provide information that the individual physician deems clinically or morally relevant. Thus a physician should not be prevented from giving such information by “gag rules.” One could make the case that the policy of the American organization that funds the clinic is in effect a gag rule if the requirement that “the counselors emphasize abstinence rather than birth control” is

interpreted to prevent discussion of condoms. On the other hand, the wording of the policy might be interpreted to mean that abstinence should be presented as the ideal, but condom use may be discussed as an alternative, though less effective, means for prevention of HIV transmission. This interpretation would not prevent Jerome from discussing condoms, though it would require that he first discuss abstinence.

Professional ethics perspective. At the same time, from a professional ethics perspective, a health care professional has an obligation to comply with the policies of his or her overseeing organization. If a physician agreed to practice at a Roman Catholic hospital with a policy that prohibits abortion except to save the life of the mother, and that physician felt it was morally and legally justified for a particular patient whose life was *not* in danger to have an abortion, it would be unethical for him to ignore the policy and provide the abortion in that setting. His options would be to appeal for an exception to the policy for this case, to provide the abortion for that patient in another setting or to refer her for an abortion at another facility. He could, of course, try to convince the policy makers to change the policy, but it is not likely this could be accomplished quickly, if at all.

Practical perspective. From a practical perspective, it seems very unlikely that the scenario presented would actually happen. Whether Jerome is a medical student, resident or licensed physician, if he has agreed to volunteer with an organization counseling people in a community in Malawi about preventing HIV transmission, it would be unconscionable for the organization that funds the clinic not to inform him of a policy that would restrict the content of his counseling. If this actually happened as presented in the vignette (that Jerome learned of the policy only after being informed by his supervisor) he has few options. He can comply with the policy, he can negotiate with the supervisor who could then negotiate with the sponsor or he can decline to participate in further counseling on the grounds that he believes this is not what is best for the patients being served.

Clinical perspective. From a clinical perspective, one can look at this in two ways. At the *individual patient level*, there is little argument that abstinence followed by sexual fidelity with an uninfected partner is the only way to be 100-percent certain of avoiding the sexual transmission of HIV. Not to inform a patient of this during counseling about the prevention of AIDS would be a breach of one's professional obligation to that patient. To give only this information, however, also falls short of that obligation. Patients also need to be counseled that the consistent use of condoms reduces the risk by 80 percent to 85 percent. At the *public health policy level*, an 80-percent to 85-percent reduction in the incidence of a fatal disease is a major accomplishment, thus a discussion of condom use by a counselor working in an AIDS prevention clinic is understandable. Using this information alone, however, does not meet the professional obligation of the individual physician to provide complete information to the individual patient.

Cross-cultural perspective. From a cross-cultural perspective, it is vitally important for an AIDS counselor in a culture different from his own to be aware of cultural

beliefs and practices that may alter the effectiveness of the scientific information he wishes to provide and the practices he wishes to encourage. Jerome appears to be aware of gender issues in the Malawi culture that will make even consistent condom use difficult. Likewise, the sponsoring organization has an obligation to involve local individuals, whether health care or community leaders, in discussions of programs and goals so they can (a) be adequately informed of cultural beliefs and practices that may alter the effectiveness of their program, and (b) modify their program in ways that will respect cultural beliefs and practices without compromising their goals.

This recognition of cultural differences raises the question of whether Western physicians practicing in developing or destitute countries should try to change local culture or should work within cultural paradigms. If the physician is the conveyor of information that is new to the culture and that is contrary to cultural practices, then encouraging patients to act on the new information may contribute to a change of culture. The nature of the change, however, will depend on his mission. If the primary mission is AIDS prevention, then the physician's task is to modify the sexual practices of the culture, perhaps by encouraging condom use. This would certainly be a major change for individuals in the Malawi culture. If, on the other hand, the primary mission is religious witness, then the visitor may try to introduce a new view of what constitutes moral sexual practices, a change that would at the same time reduce the transmission of HIV.

The question of whether the U.S. government has the right to insist that abstinence be encouraged over barrier methods of birth control in HIV programs it funds in sub-Saharan Africa is best answered using the same information that Jerome should use in wrestling with his dilemma. Since abstinence followed by sexual fidelity with an uninfected partner is the ideal, and condom use is less effective, to not encourage the former would be ethically problematic. On the other hand, to insist on this approach alone while forbidding the discussion of condoms as an alternative would likewise be troublesome.

A 2004 commentary in the *Lancet* called for “an end to polarizing debate and urge[d] the international community to unite around an inclusive evidence-based approach to slow the spread of sexually transmitted HIV. ...” The authors went on to state,

...the ABC (Abstain, Be faithful/reduce partners, use Condoms) approach can play an important role in reducing prevalence. ... All three elements of this approach are essential to reducing HIV incidence, although the emphasis placed on individual elements needs to vary according to the target population. ... All people should have accurate and complete information about different prevention options, including all three elements of the ABC approach [1].

This seems like good advice, both for Jerome and for the sponsoring organization.

This case presents a dilemma that may be increasingly encountered by health care professionals who, like Jerome, volunteer to practice in underserved areas around the globe.

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Medical education

The educational value of international electives

In this three-part medical education article, a student, a resident and a clinician-educator share their experiences of voluntary global health service with *Virtual Mentor* readers.

Learning to listen in a resource-poor international setting: a medical student's encounter with the power of narrative in Kenya

by Justin M. List, MAR

After talking with a woman who was living with HIV and caring for an HIV-positive child in the resource-poor community of Kawangware in Nairobi and completing a public health needs assessment for her, one of my medical school colleagues posed the following question to our volunteer group as we were working at the clinic: "What do I say to her at the end of the needs assessment when she asks me if I have hope that she'll live?" I remained silent. How can I as a healthy, educated, middle-class medical student from the United States answer a question so outside the context of my daily life? Given my position of relative global power as an American citizen and consumer, can I offer her more than words of solidarity or a prayer? What new moral claims do I feel placed upon me by these global neighbors as they let me into some of the most intimate parts of their lives? These questions were just the beginning of a larger personal reflection that grew from dozens of interviews with members of various resource-poor communities in Kenya and from discussions among seven of my fellow volunteers [1].

Most members of the group had just completed their first year of medical school only days before we arrived in Nairobi. As we laid the framework for our trip, we had decided that we wanted to experience an international service learning trip through the lens of public health by using a needs assessment to understand how social determinants of health impacted the lives of those we interviewed. We also designed health education modules covering hand sanitation and HIV transmission prevention. Compared to the modules, however, the needs assessments spoke volumes to us as illustrated by the eagerness to cooperate on the part of many of our participants.

For some of those interviewed, it was the first time they had ever felt listened to, as we found out from them or their translators. And hearing about the power of having a voice and feeling heard illustrated for me a learning point that I might have missed had I come to Kenya primarily to study the science of medicine. I could have easily

done just that given the disproportionate infectious disease burden there. As a person who feels “heard” more often than not, I realized that these survey participants were teaching me more about the art of medicine than I might have expected at first glance. I quickly realized how valuable it was to ask comprehensive questions about their lives and experiences, the answers to which informed my understanding of how their health was shaped beyond the ailments of HIV or malaria they might have had at that moment.

I did learn some of the science of medicine, though, if not explicitly clinical. We used a needs assessment to acquire quantitative and qualitative data that—we hope—will serve the community through its analysis. But because we designed this trip from a public health perspective and left the stethoscope and *Bates’ Guide to Physical Examination and History Taking* behind, my education in the art of the medicine remained a key component of my experience in Kenya. Being invited for just a glimpse into some of the most unjust and difficult life stories imaginable demonstrated to me how powerful narrative (and the skill of listening) can be in the patient encounter.

I did not need to go to Kenya to understand this clinical pearl, but it was there that I most acutely did. I suspect other students also experience this abroad if not in resource-poor areas of the United States. Paul Farmer writes, “We need to listen to the sick and abused and to those most likely to have their rights violated. Whether they are nearby or far away, we know, often enough, who they are. The abused offer, to those willing to listen, critiques far sharper than our own” [2]. I experienced this “sharper critique” as stories of dying from tuberculosis and AIDS-related illness, stories of poverty and a lack of employment, of abuse and, yet, stories of hope, love and faith poured out from the mouths of Kenyan men and women and onto my feeble survey, a document I could bury myself in when the raw emotion of the situation hit me.

Medical students working abroad in resource-poor, low-income settings will encounter a host of experiences and confront a variety of feelings, perhaps including some I have described. Students bring a rich array of experiences and feelings with them that affect their ability to truly listen to the content of the patient’s words, and it is to our benefit to explore these feelings before, during and after our international immersion. Like me, students may find themselves seeking clarification about how to incorporate international health care into their future careers after short-term, life-changing work. And medical students traveling abroad for the first time in their burgeoning professional capacity should be prepared to expect the unexpected despite extensive planning and pre-trip education; to experience complementary or conflicting feelings of duty, ignorance, education, helplessness and purpose all in a matter of days or weeks; to anticipate an unfolding lifetime of further professional and vocational reflection and action.

Remaining truly present and attentive may be the most difficult aspect of learning the art of listening in medicine, especially where unfamiliar contexts, cross-cultural

issues and language barriers coexist. As physicians-in-training, we have a potentially easy exit—turning our focus to the rigmarole of the chart, looking down at the survey with intent, deflecting a consideration of the often difficult-to-comprehend social determinants of health or concentrating on the biomedical components of the present illness. For me, listening to these difficult stories took more energy at times than I could have imagined listening could possibly require. And yet listening is a skill that we as medical students must continue to practice consciously as we discover our personal limits in relation to our pursuit of justice and caring for patients holistically.

Listening is an end unto itself, but it is also a means and a beginning to addressing aspects of patients' lives that lie outside but impact the biomedical context. In seeking out patient narrative, especially in international resource-poor settings, we must ask questions (in a culturally sensitive manner) to which we may fear to know the answers, answers that expose injustice yet open a new world of possibility to the patient and physician.

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1. I want to acknowledge my partners and team members, Lisa Dunning, Kathy Hakanson, Mark Hakanson, Keen Harrison, PhD, Andrew Loehrer, Terri Parks and Jaime Sua. All of them opened themselves to the power of narrative through these needs assessment surveys and, through our shared stories from survey participant encounters, they provided me valuable insights.
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Justin M. List, MAR, a former fellow at the American Medical Association's Institute for Ethics, is a second-year medical student at Loyola University Chicago Stritch School of Medicine. He received his master's degree with a concentration in ethics from Yale University Divinity School and worked at Yale's Interdisciplinary Center for Bioethics.

Doctor without borders or doctor without qualifications? How to be of use and stay safe on international student placements

by Rebecca Hope, MD

It is likely that as a medical student you will learn more from an overseas placement in a low-income country than you feel able to offer. Faced with unfamiliar diseases and living in extreme poverty, patients seek medical care much later than you would imagine. Operating with limited resources tests your clinical skills when diagnostic investigations are rationed or unavailable. Immersion in a second language taxes your communication skills and ability to establish rapport. Working in a different culture will indeed foster understanding, tolerance and patience, and you may return with startlingly different ideas about the world and perhaps more questions than answers about what is happening on our planet.

In light of all this, how can medical students try to make their time overseas effective for their hosts and patients? An early venture to Nepal after my second year of medical training made me acutely aware of my limitations in the face of these challenges and inspired me to find out more before returning to international work. I offer some tips here to help you make the most of overseas placements.

Most of those who want to work in low-income countries do so in response to the humanist imperative: to help where there is need. As medics we are equipped with skills to benefit that most precious of possessions, human life. Where health workers are in short supply and the burden of disease weighs heavily, doctors can be of great help. But without careful planning, students may find themselves unsure of their role and uncertain about whether they help or hinder the work of their host organization.

Many students have found themselves out of their depth, asked to perform unfamiliar procedures with less supervision than they would have had at home. You may be, as I was, welcomed as the “overseas doctor” and, by virtue of foreign training, expected to have superior skills. As much as you feel ready to meet these challenges and gain practical experience, you are ethically—and perhaps legally—on shaky ground if you undertake the role of doctor without qualifications. Be aware of your limitations and discuss your level of experience and knowledge with your hosts beforehand. Do your best to familiarize yourself with local conditions, treatments and the social context before you arrive.

Be frank about what you hope to gain and agree to a suitable program or research project of mutual benefit. As students, you have much to offer; it may be that teaching English to health workers and students is the most useful thing you can do. Share expertise with local students and bring teaching aids or textbooks, and you’ll contribute to a long-term investment.

With the question of sustainability in mind, even experienced humanitarian workers return home asking, “Was my work of any use?” The fact that you have come and that you care, through work and through friendships, builds solidarity with overseas colleagues. It is worth thinking about how you can continue the support at home, through hospital or medical school partnerships and professional exchanges.

International rotations, if well-organized, are a valuable learning opportunity and introduction to international health work. Look forward to it and plan it well. There are some ills that medicine cannot cure, but an ability to see the bigger picture, the social, economic and public health issues surrounding each patient, will make you a better doctor...wherever you choose to work.

Related resources

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Alma Mata. Available at: <http://www.almamata.net>. This is a free resource and network of about 500 health professionals and students interested in global health careers, training and research. It contains a database of humanitarian organizations, articles and interviews with doctors and students who have worked overseas.

Rebecca Hope, MD, is a junior doctor working in Cornwall, England. She became involved in international health through Europe's first bachelor of science program in International Health at University College London's International Health and Medical Education Centre. She has worked on projects with Save the Children, the Centre for International Child Health in London and Gudalur Adivasi Hospital, India, to study and improve community-based health insurance in low-income settings.

How can medical students be prepared for international rotations?

by John L. Tarpley, MD, and Margaret Tarpley, MLS

Medical students seeking information about the feasibility of an international experience contact us regularly with questions about initiating the process. We encourage their interest because of the global perspective they will gain from interacting with diverse and often underserved populations. Added benefits include enhanced cultural sensitivity toward patients and professional coworkers in a field that is increasingly international. Many students also find they've broadened their career options as a result of global health service. The first meeting or correspondence with students, often before they have settled on a particular nation or continent, involves getting acquainted and asking several questions: Why do you want to go? What do you want to accomplish? How much time can you commit?

Students are motivated by a combination of the desire to serve, interest in academic research, curiosity about non-Western medical education and training and a wish for personal enrichment. Those who express humanitarian or faith-based ideals usually seek to be useful in whatever way an institution can employ a person with limited medical skills. Some hope to design a research project, while others desire to experience an exotic environment, with medical practice being only one aspect of the cultural enrichment they seek. The opportunity to interact with local medical students or residents might determine the choice. Any research project requires institutional review board approval or exemption from approval on the part of the home and the host institutions. The length of time a student can commit affects both the possibility of school credit for the rotation and the availability of funding sources. The specific requirements for credit and funding should be explored carefully. Longer stays may benefit the host because the student becomes more productive after learning the system. Settling on a mutually compatible time frame is often surprisingly complex, thus necessitating an early start when planning.

Advice for the medical student seeking an international rotation

Groundwork for an international experience must begin a minimum of 6 months before the proposed visit; a year ahead is not too early to begin gathering information: how much time the school will allow a student to be away from campus and how many weeks are required for an accredited rotation, for example. Networking begins by identifying individuals in the home institution with international experience and contacting several sending agencies and institutions about available openings. One source is International Health Opportunities, which can be found on the Web site of AMSA, the American Medical Student Association [1]. The *Journal of the American Medical Association* Volunteer Opportunities feature provides an alphabetical list with contact information for numerous agencies and institutions [2]. A third source is the American College of Surgeons' Operation Giving Back Web site, which allows physicians to combine "location" choices and "specialty" in searching for global service opportunities. One eligible "practice category" in this online search system is "medical student" [3].

Considerations essential to each student's decision include cost, language and culture, visas, skills, health and safety issues and the educational benefits. Airfare is usually the single greatest expense. Sources of support are rare, although some medical schools provide limited assistance. International institutions almost never offer funding but may assist with housing.

If English or another language in which the student is conversant is not the dominant language of the area, he or she must make certain that adequate translation services are available. Language difficulties compound adjustment frustrations and reduce a student's usefulness. Likewise, students should examine their other skills and assets. In addition to the knowledge and skills acquired in the first years of medical school, some institutions may value computer expertise, English language teaching aptitude or a knack for simple repairs.

Suggestions for students overseas

Other suggestions for the student who has arranged an international rotation:

- Acquire some knowledge of the history and culture of the area from books, articles or the Internet, bearing in mind the reality may be different than expected.
- If a research project is anticipated, contact your home institutional review board as well as the institutional review board equivalent (e.g., ethics committee, board of directors) of the host institution to gather all the data required for project approval before you travel.
- Ask about visa requirements, which vary widely. Travel agents can be helpful, but visa assistance may not be automatic.
- Visit your local travel clinic if there is one. Get all recommended immunizations and follow prophylactic malaria medicine guidelines.
- Road traffic events are likely to be the greatest injury risk, so employ sensible transportation strategies.

- Once the arrangements have been established among you, your school and your international host, stick with your original travel plans.
- Luggage allowances vary with stopovers, so if you are carrying supplies, additional charges might be levied.
- Ask about appropriate clothing and suitability of items such as shorts or running attire. Slacks for women may be frowned on in some locales and acceptable in others. Comfortable shoes are always correct.

As you begin working, remember that you are a guest; be respectful and polite. Treat host physicians with the same respect shown to physicians in the U.S. Do not use first names with any hospital personnel unless they insist upon it. Titles such as doctor, mister, professor or madam are always correct. Offering gratuitous advice on how to improve procedures or infrastructure will be received politely but will be neither appreciated nor acted upon. “Now in Nashville, we do it this way,” is as annoying in an international setting as it would be in Dallas or Milwaukee. Water and electricity are often precious and intermittent, so practice economy in their use and have a good attitude towards conditions that are the norm for your hosts.

Culture shock is normal and rarely fatal

Cultural sensitivity—largely respect and humility—involves being cautious about what you say and do. Find a “consultant” early on and ask about the appropriateness of certain words or behaviors. In many cultures touching is not as commonplace as among Americans, especially touching between members of opposite sexes, and eye contact is not universally acceptable. Dress modestly; speak in a moderate tone. Be flexible regarding accommodations, food, communications and other arrangements. Most visitors are afforded the best available, so try to express gratitude even when accommodations appear less than optimum. Time, relationships and a positive outlook go far toward mitigating the effects of culture shock. Keep a journal and take photographs—but only after seeking permission from the subjects.

Appreciate the value of a “high touch, low tech” medical practice by observing that health professionals take careful histories and perform thorough physical exams when MRIs and sophisticated lab tests are unavailable. Emphasize the positive aspects of the experience. Honesty is in order, but focusing on problems may be viewed as culturally insensitive and hamper other students from obtaining an invitation from that medical center.

As the experience draws to a close, make certain you take away more than souvenirs. Perhaps you might learn a greeting (Africans often ask, “How is your family?” rather than “How are you?”) or adopt a procedure (Nigerian pediatricians have the mother hold the child during a routine well-baby check-up) or request a recipe. The international experience is a two-way street. What is acquired frequently outweighs what is given if a person is open and intent on gaining new insights and strategies.

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Journal discussion

Do international experiences develop cultural sensitivity and desire for multicultural practice among medical students and residents?

by Lauren Taggart Wasson, MPH

Godkin MA, Savageau JA. The effect of a global multiculturalism track on cultural competence of preclinical medical students. *Fam Med.* 2001;33:178-186.

Godkin MA, Savageau JA. The effect of medical students' international experiences on attitudes toward serving underserved multicultural populations. *Fam Med.* 2003;35:273-278.

Gupta AR, Wells CK, Horwitz RI, Bia FJ, Barry M. The International Health Program: the fifteen-year experience with Yale University's Internal Medicine Residency Program. *Am J Trop Med Hyg.* 1999;61:1019-1023.

Immigration and globalization have linked world populations geographically, economically and socially, creating multicultural communities at local and global levels. Physicians must therefore be prepared to serve patients who differ from them in ethnicity, language, education, socioeconomic status and cultural beliefs and norms. Sensitivity to cultural differences helps physicians communicate more effectively with patients from diverse backgrounds and, thus, provide better care for them.

International experiences, especially in developing countries where differences between patients and physicians are quite extreme, are certain to pose communication problems that force physicians to learn to adapt. Hence these experiences, while challenging, are optimal for teaching future physicians to communicate successfully with and care for underserved multicultural populations.

According to articles by Michael Godkin and Judith Savageau [1, 2] and an article by Anu R. Gupta et al. [3], international experiences promote pre-existing cultural competence among medical students and physicians and raise it to new levels. Although there is no single, agreed-upon definition, cultural competence is generally considered to mean possession of—or the effort to gain—the skills that enable a medical professional to work effectively within a patient's or community's cultural context [4]. Models of cultural competence propose multiple components, including awareness of others' and one's own social context, cultural knowledge, multicultural practice and desire to pursue the former three components [1, 2, 5]. Authors of all

three articles concluded that international experiences cultivated acquisition of these skills among students and residents. Godkin and Savageau found specifically that international experiences developed higher levels of both personal awareness and professional knowledge of cultural differences. The work of Gupta et al. revealed that international experiences nurtured residents' personal desire to care for underserved multicultural populations, a desire that the residents followed through on by having more patients in their practices from cultures or demographic categories different from their own.

Details of the studies

Godkin and Savageau examined the 2001 curriculum of the Global Multiculturalism Track for preclinical medical students at the University of Massachusetts [1]. The track consisted of six weeks of language immersion abroad plus three domestic components: time with a local immigrant family, a community service project and a seminar series. The authors found that participants not only had a higher level of cultural competence overall compared to nonparticipants both before and after the course, but that they also developed significantly greater competence in the specific area of knowledge about other cultures.

In a follow-up study in 2003, the same authors examined the various international electives taken by preclinical and clinical medical students at the University of Massachusetts [2]. Preclinical electives offered language training, and clinical electives provided clinical training, but all involved cultural immersion. Preclinical participants had higher levels of cultural understanding overall compared to nonparticipants both before and after the international experience. Both preclinical and clinical participant groups reached higher levels of cultural competence through international experiences, and both reported significantly increased awareness of the "need to understand cultural differences."

Clinical participants also said they became more self-aware and, as a consequence, grew more idealistic about their role as physicians. Preclinical participants did not become more idealistic, but neither did their idealism decline, as that of nonparticipants did. The desire of preclinical participants to work with underserved multicultural populations was stronger after the international electives than before.

Gupta et al. examined the International Health Program for internal medicine residents at Yale University in which residents spend four to eight weeks of vacation and elective time participating in clinical electives abroad [3]. Physicians who had participated in the international program were more likely to be working in public health and less likely to be in private practice. They were also more likely to consider undertaking international work in the future. Although members and nonmembers of the participant group agreed that "physicians have an obligation to the medically underserved," international program participants were more likely to draw at least 20 percent of their patients from one or more of the following categories: immigrant, on public assistance, HIV-positive or substance abuser. These authors concluded, as did Godkin and Savageau, that international experiences

enhanced pre-existing cultural sensitivity. More specifically, Gupta and colleagues found that the experiences cultivated personal desire to work abroad and reinforced the residents' dedication to working with underserved patient populations in their practices.

Study limitations

The three studies above share several limitations. There were no true nonparticipant “control” groups properly matched with the study group on other variables, and selection bias can be seen in the differences in baseline cultural awareness and sensitivity between the groups that participated in the training or elective and the groups of students and physicians used as “controls.” The study surveys were not previously validated, with the exception of a component of the survey used by Godkin and Savageau in 2001. Finally, the surveys were self-administered; none of the studies examined how well other physicians or patients thought participants applied cultural sensitivity to clinical encounters—physicians' assessments of their own cultural competence cannot be assumed to be valid. For example, a recent study comparing physician-reported versus patient-reported “provider cultural competence” found no association between the two [6]. Future research on international experiences should address students' and residents' practical application of culture-related skills as assessed by other clinicians and patients.

Cultural sensitivity put into practice is considered a key to effective communication with and, by extension, compassionate care for diverse patient populations. It is therefore an important suite of traits to foster among medical students and residents. Indeed, the Liaison Committee on Medical Education (LCME) has included it in the accreditation standards:

The faculty and students must demonstrate an understanding of the manner in which people of diverse cultures and belief systems perceive health and illness and respond to various symptoms, diseases, and treatments. . . . Medical students must learn to recognize and appropriately address gender and cultural biases in themselves and others, and in the process of health care delivery [7].

Although international experiences provide excellent settings for acquiring cultural sensitivity, it is impractical as well as unreasonable to require such experiences of all medical students and residents. Medical schools therefore incorporate the topic into their general curricula in other ways, for example through lectures, discussions, activities with local multicultural communities or combinations thereof [8]. Teaching through domestic multicultural encounters is effective according to Godkin and Savageau, who credited the domestic components of the Global Multiculturalism Track with developing significantly higher levels of cultural knowledge among participants [2]. Moreover, a 2004 study by Reimann et al. found that a “diverse educational setting” was the single most influential background factor in their model of cultural competence, predicting both cultural awareness and knowledge which in turn predict “culturally competent actions” [9].

Extending sensitivity to one's own culture

An important element of translating cultural sensitivity into practical skills is personalizing the knowledge and awareness with individual patients. Physicians should avoid stereotyping patients by recognizing that ethnic, linguistic, educational, socioeconomic and cultural groups have intragroup variation [9]. Furthermore, physicians should not assume that interactions with patients who seem like them—who are on the far other end of the spectrum relative to underserved multicultural populations abroad—are free of communication problems that can negatively affect care. Although not often described as such, cultural competence is in many ways “interpersonal competence” [6]. The idea of striving to appreciate, learn about and effectively work within another person's context should be applied to every patient interaction. Giving medical students and residents access to cultural competence through international experiences prepares them personally and professionally for the important task of successfully communicating with and caring for multicultural communities. Extending this concept to interpersonal competence would prepare them to successfully communicate with and care for all of their patients.

Question for discussion

If, after an educational experience like one of those discussed in these three articles, you were asked whether the experience had improved your ability to understand and communicate with others, how accurate and dependable do you think your self-evaluation would be? In general, to what extent do you think a person's self assessments agree with others' assessments of that person on a specific trait, competency or behavior?

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Clinical pearl

Cellulitis: definition, etiology, diagnosis and treatment

by Sarah Maitre

Cellulitis is an acute inflammatory condition of the dermis and subcutaneous tissue usually found complicating a wound, ulcer or dermatosis. Spreading and pyogenic in nature, it is characterized by localized pain, erythema, swelling and heat. The involved area, most commonly on the leg, lacks sharp demarcation from uninvolved skin. Erysipelas, a superficial cellulitis with prominent lymphatic involvement, does have an indurated, raised border that demarcates it from normal skin. These distinctive features create what is known as a “peau d’orange” appearance [1].

Etiology

Cellulitis may be caused by indigenous flora colonizing the skin and appendages, like *Staphylococcus aureus* (*S. aureus*) and *Streptococcus pyogenes* (*S. pyogenes*), or by a wide variety of exogenous bacteria. Bacteria gain entry into the body in many ways: breaks in the skin, burns, insect bites, surgical incisions and intravenous (IV) catheters are all potential pathways. *S. aureus* cellulitis starts from a central localized infection and spreads from there. An abscess, folliculitis or infected foreign body, such as a splinter, prosthetic device or IV catheter, may serve as a possible focus for this condition.

Cellulitis due to *S. pyogenes* follows a different pattern. It spreads rapidly and diffusely and is frequently associated with lymphangitis and fever. Recurrent streptococcal cellulitis of the lower extremities, seen in conjunction with chronic venous stasis or with saphenous vein harvest for coronary artery bypass surgery, often comes from organisms of group A, C or G. Cellulitis is also seen in patients with chronic lymphedema resulting from elephantiasis, Milroy’s disease or lymph node dissection such as that associated with mastectomy. Staphylococcal and streptococcal species are also the most common pathogens in bacterial infections among drug-users [2], and infections that implicate an unusual organism are often related to a specific drug or drug-use behavior.

Many other bacteria cause cellulitis. *Haemophilus influenzae* was once a major pathogen in facial cellulitis in young children, but these infections are now rare due to the type B vaccine. *Pasteurella multocida* is the pathogen in cellulitis associated with animal bites, mostly those of cats. *Aeromonas hydrophila* can cause an aggressive form of cellulitis in a laceration sustained in fresh water. *Pseudomonas aeruginosa* is the source of three types of soft tissue infection: ecthyma gangrenosum

in neutropenic patients, hot tub folliculitis and cellulitis following a penetrating wound, like that sustained from stepping on a nail. Gram-negative bacillary (rod) cellulitis, like *P. aeruginosa*, is common among hospitalized, immunocompromised patients and may have multidrug resistance. Culture and sensitivity tests are very important in this setting.

Diagnosis

Diagnosis of cellulitis is generally based on the morphologic features of the lesion and the clinical setting. If drainage or an open wound is present, or there is an obvious entry portal, Gram's stain and culture can provide a definitive diagnosis. In the absence of culture findings, the bacterial etiology of cellulitis is difficult to establish. In some cases staphylococcal and streptococcal cellulitis have similar features and are indistinguishable from each other. Culture of needle aspirates is not indicated in routine care because the result rarely alters the treatment plan. Even when taken from the lead edge of the inflammation, cultures from needle aspiration and punch biopsy are positive in only 20 percent of cases [3, 4]. This suggests that low numbers of bacteria may produce this condition and that the expanding symptomatic area within the skin may be an effect of extracellular toxins or of the mediators of inflammation elicited by the host. In spite of the low yield from aspiration for individual patients, studies have produced findings of import for overall treatment strategies: data from numerous studies, examining both needle aspiration and punch biopsy, indicate that antimicrobial therapy for cellulitis should focus on Gram-positive cocci in immunocompetent hosts, *S. aureus* and *S. pyogenes* in particular [1].

Treatment

Since most cases of cellulitis are caused by staphylococcal and streptococcal species, beta-lactam antibiotics with activity against penicillinase-producing *S. aureus* are the drugs of choice. Cefazolin, a first-generation cephalosporin, nafcillin, an antistaphylococcal synthetic penicillin and ceftriaxone, a third-generation cephalosporin, are all initial treatment options. If methicillin-resistant *S. aureus* (MRSA) is suspected or the patient is highly allergic to penicillin, then vancomycin and linezolid are the drugs of choice and have similar cure rates. Initial treatment should be given by IV in the hospital if the inflammation is spreading rapidly, if there is a significant systemic response (chills and fever) or if there are complicating coexisting conditions like immunosuppression, neutropenia, cardiac failure or renal insufficiency. Diabetic foot infections require special care since they often involve multiple pathogens. A recent study showed that ampicillin-sulbactam and imipenem-cilastatin have similar cure rates (81 percent and 85 percent, respectively); the former combination was more cost-effective [5]. The list of other organisms that can produce cellulitis is long. These cases usually present in such characteristic ways that anatomical location and the patient's medical and exposure history aid with diagnosis and guide appropriate antibiotic therapy.

Supportive care measures include the elevation and immobilization of the involved limb to reduce swelling and application of sterile saline dressings to remove

purulence from open lesions. Dermatophytic infections should be treated with topical antifungal agents until cleared. Prompt use of antifungals either prophylactically or at the earliest sign of recurrence can reduce the risk of spreading. Patients with peripheral edema are predisposed to recurrent cellulitis, and support stockings, good skin hygiene and prompt treatment of *tinea pedis* (athlete's foot) can help prevent recurrences. Despite these measures, some patients continue to struggle with frequent episodes of cellulitis and may benefit from prophylactic use of penicillin G or erythromycin.

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Related article

[Pragmatic principles of pharmaceutical donation](#), December 2006.

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Health law

Intellectual property and access to medicine for the poor

by Tara Leevy, LLB, LLM

India is a significant source of affordable generic medicines for developing and least developed countries (LDCs). About 80 percent of the AIDS drugs that the international medical humanitarian organization Medecins Sans Frontieres (MSF)—better known in the U.S. as Doctors without Borders—uses to treat over 60,000 patients in more than 30 countries are generics from India [1]. Novartis, a Swiss pharmaceutical company, has filed a challenge against India's patent law, specifically a part of the law that restricts the patenting of trivial improvements. MSF warns that this case, which is being heard in the Chennai High Court in India, may have widespread implications for India's ability to sell affordable generic drugs.

Many factors affect the procurement of essential medicines at prices people in poor countries can afford, including knowledge and understanding of domestic and international intellectual property law; market intelligence concerning the pricing and supply of medicines and how to forecast demand; global coordination among governmental and nongovernmental agencies; opportunities for local production of medicines in low and middle-income countries; capacities of health systems and budgets; and regulatory capability [2].

Far more critical than these factors in facilitating the global and regional availability of essential medicines, however, is the use of exemptions and amendments, called "flexibilities," in the Agreement on Trade-Related Aspects of Intellectual Property Rights, known as TRIPS.

The TRIPS regime

TRIPS and the patent right. TRIPS, which is part of the Agreement Establishing the World Trade Organization (WTO), is the most comprehensive international agreement on intellectual property protection ever established [3]. Articles 27 to 34 of TRIPS protect patents; that is, they provide the patent owner with the legal means to prevent others from making, using or selling the new invention for a limited period of time, subject to exceptions. Patent protection has to last at least 20 years from the date the patent application was filed [4].

Exceptions to the patent right. Article 27 of TRIPS allows for certain exceptions to patent protection. Governments can refuse to grant patents for three reasons that may relate to public health: (a) when commercial exploitation of an invention must be

prevented to protect human, animal or plant life or health; (b) when new diagnostic, therapeutic and surgical methods for treating humans or animals are invented; and (c) in the case of certain plant and animal inventions [5].

Article 30 of TRIPS allows governments to make limited exceptions to patent rights if certain conditions are met; if, for example, the exceptions do not unreasonably conflict with the normal exercise of the patent. Under this article, researchers may use a patented invention for research in order to understand it more fully, or the patented invention may be used to obtain marketing approval from public health authorities.

Compulsory licensing. Compulsory licensing is the granting of permission by a government to a party or entity (the licensee) to produce the patented product or process without the consent of the patent owner. Although TRIPS does not specify what requirements must normally be met for a party to obtain a compulsory license, Article 31 states that a compulsory license may be granted in an unusual situation (for example, an emergency) without requiring a party to meet requirements that would normally apply.

Parallel imports/gray imports. Parallel importation (also known as participation in the gray market) involves the buying of goods in a foreign country at a price that is lower than the price at which they are sold in the domestic country and the reselling of those goods in the domestic country at a price less than or equal to the market price in that country. For example, the distributor of medicine X in Australia buys medicine X in Thailand at a low price, then re-imports it into Australia to sell at a price that is the same as, or lower than, the price at which it is directly offered to Australian consumers.

Pre-Doha Round: 1995-2001. When TRIPS went into effect in 1995, the LDCs were exempted from TRIPS patent rules, but most of them lacked production capacity and depended on cheap imports from other countries, such as India, where low-cost generics were available. This general shortage of pharmaceutical manufacturing capacity in LDCs meant that once the generic supplier countries (often other developing countries) became subject to TRIPS patent rules, both the developing and LDC countries would be faced with the prospect of unaffordable drug prices. While theoretically TRIPS provided for some flexibilities (for example, compulsory licensing), poorer countries were pressured by more powerful interests against using such mechanisms.

This crisis in drug availability led to another round of multilateral trade negotiations, known as the Doha Round, out of which came the Doha Declaration on the TRIPS Agreement and Public Health or the Doha Declaration on Public Health for short, in November 2001. The Declaration was revised in 2002) [6].

Doha Declaration on Public Health. In the Doha Declaration, ministers of WTO member countries recognized the gravity of public health problems afflicting poor

countries, especially HIV/AIDS, tuberculosis, malaria and other epidemics. They declared that TRIPS should not prevent WTO member countries from taking measures to protect public health and affirmed the right of WTO members to use the exemptions in TRIPS, which provide flexibility for this purpose. They underscored some of the key flexibilities in the agreement, for example, parallel imports and compulsory licenses.

Nevertheless, it was recognized that compulsory licenses remained subject to some conditions in Article 31 of TRIPS, which caused difficulties for developing countries and LDCs that relied on cheap imported medicines. One provision of TRIPS, for example, required that the bulk of all drugs manufactured under a compulsory license be sold only on the domestic market.

Paragraph 6 of the Doha Declaration attempted to override this hurdle by stating:

We recognize that WTO Members with insufficient or no manufacturing capacities in the pharmaceutical sector could face difficulties in making effective use of compulsory licensing under the TRIPS Agreement. We instruct the Council for TRIPS to find an expeditious solution to this problem....

A solution was reached with the 2003 Implementation of Paragraph 6 of the Doha Declaration on the TRIPS Agreement and Public Health [7]. It took the form of a temporary waiver that was converted to a permanent amendment of the TRIPS Agreement in December 2005. The amendment allows a WTO member country to modify its domestic patent law so that exports under a compulsory license can assist a country that lacks manufacturing capacity. In accordance with this amendment, an exporting country's total production may be exported to meet the needs of an importing country.

TRIPS: post-2005. Despite the TRIPS flexibilities discussed above, WTO member countries cannot avoid their obligations to protect patents in accordance with the provisions of TRIPS. In 2005 the transitional period for developing countries like India to become fully TRIPS-compliant came to an end.

Conclusion

MSF has cautioned repeatedly that if measures are not found to reduce the prices of expensive patented medicines, the ability of those in poor countries to get essential medicines will worsen [8-10]. Swift action is necessary to prevent further crisis in developing countries and LDCs. One solution that has been advanced is the creation of regional pharmaceutical supply centers that can better access affordable medicines by virtue of economies of scale and cooperation. As discussed above, however, the major obstacle to procuring affordable medicines continues to be the TRIPS regime. In the absence of further amendment, developing countries and LDCs should utilize the existing TRIPS flexibilities as far as is possible.

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Policy forum

How has the Global Fund affected the fight against AIDS, tuberculosis and malaria?

by Josh Ruxin, MPH, PhD

The Global Fund to Fight AIDS, Tuberculosis and Malaria—one of the most important vehicles for delivering life-saving drugs and treatment to the world's poor—has virtually transformed public health delivery in its four short years of existence. Unfortunately, in spite of its success—it currently has disbursed nearly \$3 billion for 371 projects in 129 nations—full funding has not yet been pledged [1].

The success of the fund largely derives from its operational strategy: it serves as a financial donor but not advisor to countries' health programs. It is indeed an innovative approach because recipients drive the planning and implementation process. The fund-supported programs are thus tailored to local needs, benefit from the enthusiasm and commitment that comes with a sense of ownership, and help build the managerial expertise and institutional capacity necessary for improving national health care systems.

Unlike the heavy-handed programs of the past, the fund finances projects that tend to be led by government or nongovernmental organizations. The onus is thus on them, not the fund, to deliver results. The fund supports programs that “focus on performance by linking resources to the achievement of clear, measurable and sustainable results” [2]. From the fund's genesis, it was made clear that when the time came to renew grants, “grantees not producing sufficient positive results would not receive additional funds” [3].

Why the Global Fund is good for the world

Many Global Fund programs are meeting or exceeding their targets—programs in countries like China, Ghana, Honduras and Rwanda reached 80 percent of their original two-year goals during their first years of operation [4]. Depending on how one judges, anywhere from one-quarter to one-half of Global Fund recipients have met or exceeded the ambitious goals they set for themselves. And even a 25-percent success rate would be staggering, considering the troubling history of public health endeavors in poor countries. Many of the recipients are worthy of renewed financial support. Sadly, an increase in their funding is not guaranteed.

The primary difference between the successful Global Fund programs and other deserving but underperforming programs is that those in the former group operate in

countries where health care systems are already in place. They have hospitals and doctors and competent health ministries; they have mechanisms for running public education campaigns, for setting up testing clinics, for delivering medication to patients. For these countries, the infusion of significant Global Fund money is precisely the key to finally beating AIDS, tuberculosis and malaria. In the less fortunate countries, however, money isn't enough. Without the expertise and the health systems, the millions of dollars are not spent effectively—and in many cases may not be spent at all.

It is precisely that innovative recipient-driven structure, however, which has led so many of those potentially successful projects to struggle mightily. Ultimately, the problem with autonomy and self-direction is that, within many recipient countries, the necessary expertise and capacity to effect fundamental change simply do not exist. This weakness extends far beyond the well-documented dearth of doctors and nurses in poor countries. Many health ministries in sub-Saharan Africa, long deprived of any real financial support, simply do not know how to handle millions of dollars in grants. On a macro level, they need to learn how to plan a country-wide scale-up of AIDS clinics or a national fight against malaria. On the micro level, they must hire thousands of medical workers, choose recipients for antiretroviral medication, distribute mosquito nets and track patients. Some of the deficiencies result from a lack of training. For example, health ministry workers may not know how to use a computer. Other deficiencies stem from a lack of capital, as when there simply are no computers to use.

Needed: more human capital

The solution to these problems is not to cut funding. Rather, we must invest even more capital, this time human, in the fight. Full-time, on-the-ground advisors with backgrounds in business management, public health and government must be enlisted to work with recipient governments and Global Fund projects to craft and implement national health policies, and to train local officials to manage programs big and small.

In Rwanda, Columbia University's Access Project has helped build capacity for Global Fund programs since 2003. Advisors have worked on both strategic plans and proposals and on implementation. The project was instrumental in writing proposals to improve the lives of people living with HIV and AIDS by engaging entire communities in a solidarity-building mutual health care model, increasing health security through consistent access to care as well as by encouraging the general utilization of health care, and by fostering financial security through micro-projects and income-generating activities. Between 2003 and 2004, the Access Project helped implement a Global Fund-financed program to scale up access to HIV voluntary counseling and testing. Of course it provided big-picture support by helping to develop management plans, report templates and drug distribution mechanisms. In addition, though, it featured day-to-day support, training government officials to create budgets, manage subordinates and coordinate activities that required the input of several partners. When the project began, there were only three places in Rwanda

to receive counseling and testing. After 12 months of around-the-clock effort, there were 70, and today that number has increased to nearly 120 Global Fund-financed sites [5].

In the coming year, the Global Fund will have to make tough choices since it is short \$1 billion in pledges for 2006 and another \$2.6 billion for 2007 [6]. That means the fund will literally have to turn down good proposals which are slated to save lives immediately. This unacceptable outcome must be fought fiercely by all who care about seeing the end of these diseases and the expansion of health care to the world's poor. Donor nations, foundations and even the private sector can turn the fund's financial situation around quickly. Together, they can ensure that the perpetual loss of lives from AIDS, tuberculosis and malaria is ended.

Notes and references

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Policy forum

Equity or minimum standards in humanitarian aid: a conflict of principles

by Egbert Sondorp, MD, MPH, and Olga Bornemisza, MSc

Imagine being a doctor with two patients and one pill. The two patients are similar in age, sex and other characteristics. Both suffer from the same disease that will be deadly unless they can take that pill. To whom would you prescribe the pill? There is no easy answer. You may be tempted to give each patient half a pill, even though you know that half a pill is unlikely to cure either of them.

Having to make such choices is not so rare in either clinical medicine or public health, but usually the choice is disguised. For instance doctors may provide treatment to some groups of patients and not to others because of the treatment cost or the patient's age. Or we let one principle prevail over another, as happens when making the trade-off between equity and efficiency in deciding what services to offer people who live in very remote areas.

Value judgments, of which we may not necessarily be conscious, assist us in making choices between potentially conflicting principles. One recent example can be found in the humanitarian field, where the principle of strengthening local health systems and so promoting equity was at odds with the principles of humanitarian assistance. This happened in the far north of Uganda, in a region called the West Nile.

The [West Nile](#) region is situated in the northwest corner of Uganda, bordering the Sudan. Three of its districts, Arua, Moyo and Adjumani are the long-term home to more than 120,000 refugees from the Sudan. The first refugees arrived in 1986, with subsequent waves in 1988 and 1993-1994. The government and people of Uganda generously offered them asylum and allocated pieces of farmland. The refugees live in disparate settlements apart from the host population. They make up a substantial proportion of the total population in the three districts, from 6 percent in Arua and 17 percent in Moyo to 32 percent in Adjumani [[1](#), [2](#)].

The United Nations High Commission for Refugees (UNHCR) was mandated to provide protection and assistance to these refugees, including provision of health services. With additional funds raised from the international community, the UNHCR fulfilled this mandate by contracting nongovernmental organizations (NGOs) to provide health services in the settlements.

Nowadays, any evaluation of assistance to refugees makes use of the Humanitarian Charter and Minimum Standards in Disaster Response, as formulated by the Sphere project and usually referred to as the “Sphere Standards” [3]. The Sphere project was set up in 1997 by a group of humanitarian agencies to build broad consensus around a set of minimum standards that should be applied to assistance for people affected by calamity or conflict. As expressed in the Humanitarian Charter, these standards are “rights-based,” deriving from international humanitarian law, international human rights law and refugee law. One intent behind their formulation was to create standards against which agencies that had financial and other resources and unfettered access to the affected populations could be held accountable.

The Sphere standards set minimums for how much water a person should have access to per day (15 liters), how much food (2,100 kilocalories [kcal] per person per day), and what essential health services must be available.

Overall, the health service provision in Uganda is seriously constrained, particularly so in remote areas like the West Nile. In addition, the health system operates in a context of severe poverty, human resource shortages and lack of capacity.

The UNHCR and partner NGOs have run the programmes for refugees in West Nile for many years, and the Sphere standards are, we may assume, more or less adhered to for the people being served.

There is some published evidence of the effect of these operations on the health services for refugees that compares them with those available to the host population. In an article published in the *Lancet*, Orach and colleagues report on the differences between hosts and refugees by measuring “unmet obstetric need” [2]. Tracing the number of major obstetrical interventions for absolute maternal care needs provides a good indicator of how well obstetrics needs are being met. The results showed that rates of major obstetric interventions were significantly higher for refugees than for the host population living in the same areas as the refugees. This was also reflected in a separately measured lower maternal mortality rate among the refugees compared to the hosts.

Thus, what exists is a situation where refugees have better health services than their hosts. This does not mean that the refugees are being provided with extravagant health services; agencies are just meeting the rights-based minimum standards as formulated and promoted by the international humanitarian community. Rather, it means that the hosts have health services that clearly fall below these minimum standards. We have come across similar situations in other low-income countries, and it is clearly undesirable, not least because it may engender resentment among the host population.

There is no easy solution. Sometimes it is argued that health services for refugees should be integrated into national health services. Two reasons for this are given. One is the equity argument, which is that all people in equal need should receive the

same health services. The other is that the additional resources provided for refugee assistance could be used to strengthen the pre-existing local health services, so all would benefit. Where resources are adequate and capacity exists, this may be feasible, as it was in Guinea [4], but most often integrating refugee services means spreading the available additional resources amongst the entire population, resulting in little net gain for all and nonadherence to the minimum Sphere standards. In other words, this amounts to breaking the pill in half, to go back to the thought experiment at the beginning. This is currently the case in many refugee situations, and should be rectified through additional funding and the adoption by the development community of standards similar to those of the Sphere project.

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Medicine and society

The “ethical imperative” of global health service

by Edward O’Neil, Jr., MD

Why should we care? That is the essential question, and one that has fueled a contentious debate for generations. Millions around the world die every day of treatable illnesses that stem largely from extreme poverty. Yet, in strident and acrimonious tones, certain pundits tell millions of their adoring listeners why all people—particularly the poor—should pull themselves up on their own. Any money or aid we send the way of the global poor, they say, will surely be stolen, wasted or, as Senator Jesse Helms once said, “thrown down foreign rat holes” [1]. The sport of blaming the poor for their poverty and sickness is not new, and the mythology that “explains” poverty has long dominated our public discourse.

For those who comprise the future of the medical profession, this question, and our collective response to it, carries a particular moral relevance. We can no longer train our young physicians to become strong clinically but inept socially, lacking true knowledge of the world. That description, however, fits generations of physicians who bequeathed to today’s medical students an honorable profession with a miraculous ability to cure, yet hobbled by an Achilles’ heel: that our knowledge and talents serve those who can afford them. Somewhere along the journey from 18th-century ignorance to modern competence we missed the bigger picture. We failed to recognize that clinical excellence, though valuable in its own right, is diminished substantially if it remains out of the reach of most of the human family. Paul Farmer once wrote that “excellence without equity” looms as the central challenge facing the medical profession, and he is no doubt correct [2]. Our challenge, which falls mostly on the shoulders of today’s medical students, remains finding ways to bridge the gaps between those in rich and poor countries.

Profound inequalities

Even a cursory look at our world reveals profound inequality in health and longevity. Every single day, 28,000 children under age 5 die of treatable illnesses, while 10,000 Africans die every day of just three treatable diseases—AIDS, tuberculosis and malaria [3, 4]. Nearly half a million women die in childbirth in developing countries at rates 10 to 100 times that of those in the rich countries, while nearly 30 years separates the life expectancy of those in the richest countries from those in the poorest [5]. More than 1.1 billion people live on less than \$1 per day, while another 1.3 billion live on less than \$2 per day. Somewhere, someone dies every eight seconds of AIDS [6].

One would think that a profession of smart and compassionate individuals would have long ago addressed such inequality. Yet, despite some encouraging recent trends, we have addressed these disparities with only a fraction of our potential. In 1984, Timothy Baker, MD, of Johns Hopkins University found that just 1 in 300 doctors and 1 in 1,000 nurses were active in global health at the time [7]. More recently, the Association of American Medical Colleges found in a 2006 survey that 27 percent of U.S. medical students reported having taken electives abroad, compared to just 6 percent in 1984 [8, 9]. It seems that today's medical students take their global health responsibilities far more seriously than we ever have before.

Moral impetus to act

Perhaps we should turn first to medical students when we seek answers to the essential question, why should we care? It is a question I hoped medical students and physicians would never ask, but one we must answer. Physicians can trace an ethical ancestry back over two millennia to Hippocrates. Our charge is, and always has been, to care for all people. Rudolph Virchow, the 19th-century physician, perhaps best articulated the role of the physician in the larger world order when he said, "physicians are the natural attorneys of the poor" [10]. Who else will care for them and advocate on their behalf as we might? Albert Schweitzer, once described by President Kennedy as the towering moral figure of the 20th century, added that we have an "ethical imperative" to care for all people, not just those in our traditional realm of concern [11]. Schweitzer abandoned three prosperous careers in Europe to go to medical school and then spent most of the next 50 years working as a physician among some of the poorest people in the world in West Africa. The world noted Schweitzer's feat with the 1952 Nobel Peace Prize, an honor that may well loom ahead for Paul Farmer. Similarly, Dr. Tom Dooley became an American icon during the 1950s through his health service work in Southeast Asia and was the inspiration for the U.S. Peace Corps [12]. We are fortunate to have such crucial role models who speak to the heart of the medical ethic, where the art of medicine intersects with the highest aspirations of man.

For those who need a further moral impetus to act, we find answers in a variety of world religions, to which more than 4 billion people claim some adherence. Christianity, Judaism, Islam and almost every other faith share worldviews rooted in social justice. Each commands its adherents to care for the poor while creating a just world order. A branch of Christian thought called liberation theology compels its adherents to follow the scriptures and *act* to free the poor from their oppression. Similarly, the expanding paradigm of human rights informs us that each person has a birthright to life, health, education, freedom and the dignity that comes from membership in the human race. In light of the above, the role of the physician is clear: we are called to bring about a just world order, in large part by improving the basic health of the world's most vulnerable people.

From a practical perspective, the call for us to act is equally strong. The idea that one group of people can remain isolated from any other group should have long ago expired. Severe acute respiratory syndrome (SARS) should have destroyed any

remaining illusions. The next plague, the one that will inevitably follow AIDS, is just one short airplane flight away.

Eventually, if the course of human history offers any lessons, even the poorest countries will develop. Population growth slows mainly by improving the health of the poor [13]. The sooner we embrace all of humanity, the better our prospects for long-term survival will be.

Through many conversations with health professionals throughout the United States on such matters, I have come to a clear realization. Those who write and talk about the dream of global health equity can make people think, but can't make them care. It is only through direct involvement with the poor in the developing world (or here at home) that medical students and others in the medical profession at large will find reasons to care and, ultimately, find ways to change the health of the world's most vulnerable. Gustavo Gutierrez, the father of liberation theology, once advised people to forget the "head trip" of studying the problems of the poor and take a "foot trip" to work among them [14]. Only through such engagement, he argued, can we begin to understand the complex realities that have long conspired to rob the poor of their agency, their health and their very lives. Only then can we begin our personal journeys of lifelong action.

A global journey

Like so many others who have long worked in global health, my journey began as a fourth-year medical student, in my case working on the wards of a mission hospital in Tanzania. What I experienced there opened my eyes to a world I never knew existed and radically changed my life's path. Over the ensuing years, I sought answers to the most perplexing questions that arose during those first few months in Africa. Why did such needless suffering and dying go on during a time of medical miracles? How could we get more doctors, nurses, medical students and other health personnel to actively engage the problem? I channeled my energies into writing two books that answer these questions, and were recently published by the American Medical Association [15, 16].

Through the history of our profession the ethos of Virchow, Schweitzer and Farmer has been admired by most yet practiced by few. Our collective future resides largely in the hands of the medical students of today. Bono, Bill Gates, Jeffrey Sachs and Paul Farmer can lead and inspire, yet ultimately it will be the combined acts of many that hold the power to transform our profession, from narrowly focused clinical excellence to broadly distributed social justice, a full embrace of all that is the best of what our profession can be. You can and must lead the medical profession to a more rational and clear-eyed view of the world and our collective role in it. Ultimately we reap what we sow, and continued inattention to the plight of the global poor will lead us all to a bitter harvest. You can change this, and I urge you to do so.

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referencing index so that anyone, including medical students, can quickly find the organizational match that is right for them.

Edward O’Neil, Jr., MD, is an emergency physician at Caritas St. Elizabeth’s Medical Center in Boston and author of “Awakening Hippocrates: A Primer on Health, Poverty, and Global Service.” He is also the founder of Omni Med, a nongovernmental organization that sends physicians and other health volunteers overseas to serve in programs in Belize, Kenya, Thailand and Guatemala, among other locales.

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Op-ed

A caution against medical student tourism

by Mary Terrell White, PhD, and Katherine L. Cauley, PhD

Interest in international clinical electives is growing rapidly in the United States and Canada, especially among first-year medical students who often have time for extended travel the summer before their second year. While these students are rarely qualified to provide much in the way of direct care, they often get their first exposure to health care in a less-developed country through international electives. When they are well-designed and well-structured, international electives can be a powerful catalyst for a career of public service to underserved populations at home and abroad. In this commentary, however, we offer some words of caution.

Student interest in international electives stems from laudable motives. Most students are aware, in theory, of the vast disparities in health care around the world and wish to make a positive contribution through volunteer work. Many may even be anticipating careers in which international work is central. The question of who is helped most by these experiences is nonetheless a valid one. Students typically spend a few weeks or a month in a variety of settings in a country in which the culture, language, clinical practices and common illnesses are unfamiliar. While students may provide helpful assistance, their knowledge, skills and goals may not always be congruent with the needs of the host community, resulting in opportunities for misunderstanding and sometimes risks to students or patients. Four areas of concern have to do with the necessity of cultural competence, students' impact on the clinical environment, risks to patient and student safety, and medical student tourism.

Cultural sensitivity

First, medical students tend to focus their attention on medical conditions independent of economic, political, cultural and contextual factors. The structure of the elective can impact how they understand the role of these nonclinical factors in health and disease. For example, students housed in hotels with access to Western food and many conveniences of home will probably have a more difficult time understanding the lives of clinic patients who are a part of the local culture. While concerns about student safety and comfort are important, students' understanding of health and illness in the local environment is enhanced when disparities between their living conditions and those of the people they are serving are minimized. Equally important is the need for student sensitivity to local cultures and social expectations. Sometimes it is hard to contain reactions when circumstances are both unexpected and unsettling, but blunders can have lasting consequences for students,

patients and future electives. Students who have some preparation for the complexities of cross-cultural interaction prior to leaving the U.S. may have a better understanding of how to react to new and different circumstances, what to expect of their environment and how to avoid giving offense. The value of this preparation cannot be overstated.

Impact on the clinical environment

Second, the mere presence of students can impact a clinic or hospital setting, even when the student does little more than shadow local clinicians. Students would do well to consider what it is like for a patient to be observed by a comparatively wealthy young foreigner, often of a different race or gender. For some patients, the presence of a student signifies interest and is appreciated. For others, an observer inhibits full disclosure. If, as is natural and appropriate at home, the student wishes to ask questions, it is hard to know how this will be interpreted by the patient. Does the question show concern, or does it distract the physician, taking time and attention from the patient? Does the question increase the patient's anxiety? In crowded hospital wards, in the interests of privacy, physicians often speak very quietly, and only those who are close can see and hear. Again, how might the presence of foreign observers affect communication, caregiving or the learning opportunities of local students by taking up limited space? In short, it is important for students to recognize that their physical presence can be helpful and, at the same time, potentially disruptive for the people with whom they interact.

Risks to patients and students

Third, medical students are often eager for the clinical experiences which international electives promise to provide. Depending on the setting, however, circumstances may be such that students find themselves expected to act in situations for which they are unprepared and unqualified. Sometimes these circumstances jeopardize both patient and student safety. But when the choice for a patient is a student's care or no care, what should the student do? When regulations are lacking, when medical needs are great and a student's knowledge exceeds that of alternative care providers, what constraints should apply, especially if a local physician asks him or her to act? How should students balance the needs of the moment with the fact that they represent their medical school, their country, perhaps their race and religion, and future medical missions? If a patient is harmed, the repercussions may last for years. Needless to say, these concerns are compounded in the occasional cases of students who view international electives as an opportunity to practice procedures they aren't allowed to do at home. Not only is this attitude highly unethical, it poses potential liability risks to the sponsoring medical school.

“Medical student tourists”

Finally, some students may be interested in international electives chiefly as a way to travel for academic credit. Medical student tourists are easily spotted—they spend minimal time in the clinics, instead using the elective as a jumping-off point for recreational activities. Host personnel recognize this and have little respect for such students. Yet, arguably, curiosity and a spirit of adventure are assets for any

physician. How ought students to balance these wishes with a clear commitment to learning and medical service? How much recreational time is acceptable when students are abroad?

This review of some of the problems that commonly arise in international electives is offered as a caution, not a deterrent to such electives. Experience in a less-developed country can be an extraordinary opportunity for students to learn and contribute to underserved populations. For electives to be successful for both the students and host community, however, thorough preparation and planning are essential. Ideally, preceptors from the sponsoring institution who are familiar with the host setting, personnel and medical needs of the community will establish how many students can be accommodated at one time and where the students will live and will ensure that the specific tasks the students perform are appropriate to their skill level and adequately supervised.

Students should study the history and culture of the region where they will be working, know something about the health care needs in the area and be prepared for the kinds of work they will be doing. They should be encouraged to immerse themselves in the communities, to learn as much as they can about the living and working conditions of the people they are serving and to reflect on what they see and experience. But most importantly, only students who sincerely want to care for the underserved, whether at home or abroad, and who are genuinely curious about the myriad factors that impact their patients' lives and health should aspire to participate in these electives. While credit-bearing electives imply a focus on education, international clinical electives must locate learning in the context of genuine service and respect. Asking the question, who are we helping? before, during and after engaging in international electives, may help to ensure that such experiences are successful for both students and their hosts.

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Op-ed

Student clinical experiences in Africa: Who are we helping?

by Craig J. Conard, Marc J. Kahn, MD, Karen B. DeSalvo, MD, MPH, MSc, and L. Lee Hamm, MD

Consider the case of 9-month-old Soleymane. She visited her village clinic in rural West Africa where a fourth-year medical student from the United States was doing a rotation. The initial exam revealed a very ill-appearing, febrile infant who was lethargic. She was also grunting and had chest wall retractions. The medical student assisted the nearest physician in arranging immediate transport to the local medical center for emergency treatment of cerebral malaria. Just as the local physician was discussing the situation with the infant's parents, Soleymane went into cardiac arrest. The medical student started CPR, only to be told a minute later that his efforts were futile.

Occurrences like this are all too common in rural Africa. This continent, where thousands die each day from easily preventable diseases such as malaria, dehydration and diarrhea, serves as the ideal setting for medical students and residents who wish to experience medicine in the trenches. When deciding whether or not to do an international rotation, medical students must weigh the benefits and disadvantages inherent in these programs. While most of the rotations are brief, the impacts of the experience can be life-altering.

In one study students who had participated in an international experience in rural Nicaragua reported a growing awareness of the social determinants of health, an increased global perspective and an appreciation of cultural influences on health [1]. Other studies have noted that the most frequently reported outcome from an international experience was greater cultural sensitivity; participating students tended to think more positively about people from other countries and were more adept at treating patients with diverse cultural backgrounds [2]. Other secondary benefits included an increased interest in primary care, improved history and physical examination skills, and experience in practicing medicine with limited resources [3, 4].

Students also experience many limitations and frustrations when working overseas. These include difficulties accepting local customs, beliefs and practices, the slow pace of implementing change and problems in communicating goals and objectives of the experience. While at the moment these frustrations may impinge upon the

students' experiences, in the long run, students benefit by learning how to cope with problems and find solutions.

Global public health

Recent outbreaks of severe acute respiratory syndrome (SARS) and Avian flu, the HIV/AIDS pandemic and the spread of multidrug-resistant tuberculosis have raised public awareness of international threats to public health and have spurred interests in global health. This interest has been supported by significant public and private investments in programs aimed at improving global health and limiting the spread of disease. The United States government has pledged \$15 billion for HIV/AIDS prevention and treatment through the President's Emergency Program for AIDS Relief (PEPFAR) [5]. The well-known work of the Bill and Melinda Gates Foundation [6] and the William J. Clinton Foundation has inspired other private sector foundations and donors to become involved.

Programs aimed at improving global health are often affiliated with academic medical centers. The increased resources associated with these programs have created support for undergraduate and graduate medical education to develop the next generation of global health physicians.

These international curricular offerings are of great interest to a growing number of medical students. In 1982, an estimated 6 percent of U.S. medical students participated in an international rotation [7]. By 2004, that percentage had increased to 22.3 [8]. While students clearly perceive that they benefit in many ways from international rotation, the benefit to the citizens of the developing countries who receive the care is less well known.

Are we *really* helping?

Student clinical experiences overseas, especially in developing nations, involve a conflict between the ethical principles of beneficence and nonmaleficence. On the beneficence side, the students are working to provide care to those most in need. But this care is fragmented and temporary—and is being provided by those who have not yet completed training. Temporary, fragmented and inexperienced care can be a source of harm as well as a source of benefit in most of the developing world. Is some care better than none? Yes. Even basic preventive care can save lives. Although we live in a highly technology-dependent society in the U.S., the level of technical expertise that we enjoy is not always necessary to prolong life and improve its quality. For example, more than one-quarter of Medicare expenses occur in the last year of life [9]. Some of this expenditure is relatively futile, minimally delaying death without improving quality of life. The absence of technology in developing countries forces students to focus on physical examination and history taking and to provide services that may amount to only comfort-giving and discourse.

One may be cynical here and say, as an Ayn Rand objectivist might, that the main reason medical students volunteer for electives in underdeveloped countries is that

doing so is in their own rational self-interest; that is, they benefit more than their global patients.

A reasonable response to such a charge is this: the fact that those students promote their own learning by providing health care in underdeveloped countries does not diminish the help they provide to patients they serve there. Yes, Soleymane's death is an invaluable lesson for the student. And, yes, the medical student's presence, help in transport and administration of CPR gave Soleymane's parents the solace of knowing that everything possible was being done for their baby.

As global health interests and activity rise, educational opportunities in global health experiences become increasingly available to medical students who want to explore this field. And as more encounter the challenges associated with such experiences, some may even question whether their desire to train overseas was a selfish one. But such direct experiences, and perhaps even the tangential cultural experiences, transform the students who have them, inspiring more lasting and widespread efforts to improve the health and quality of life of people around the globe.

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Medical humanities

Albert Schweitzer: His experience and example

by Jennifer Kasten, MSc

The dean of admission at my medical school doesn't much go for pipe dreams of international medical volunteerism. Upon meeting a prospective student with a bit of overseas work on her record and Albert Schweitzer-esque aspirations, he either gives a beatific smile, or he screws his formidable eyebrows together, mutters something Scrooge-like ("idealistic rot") and turns the conversation back to rugby, of which he is inordinately fond.

As you might have guessed, I was such a student. My plunge into the blood and muck of international medicine came a few years ago in Haiti. One night, I found myself attempting to deliver a woman of her third child. The baby wouldn't come. Down the rutted mountain road, however, lay a crude oil lamp-lit hospital, staffed by a doctor; a doctor who was able to do Caesarean sections. I picked up our patient's pitocin IV and bundled her into an old station wagon, which in its shock absorberless state served as an ambulance. I wedged myself into the back, holding the IV in one hand and the patient's legs apart with the other, trying to avoid a concussion each time the car leapt from ditch to ditch. One thought only ran through my mind: "What on earth am I doing here?"

I was there because I was both fascinated by, and inspired to work in, tropical medicine. I was fascinated by the infectious tropical diseases and inspired by the example of Albert Schweitzer. I had read about Schweitzer—a professor of theology, clergyman, world-famous organist, missionary, writer, tropical doctor working alone deep in the forests of Gabon, Nobel laureate—and had somehow come to the conclusion that I could imitate his example. As the writer Colette once said, "Humility has its origin in an awareness of unworthiness, and sometimes too in a dazzled awareness of saintliness" [1].

Schweitzer has been called one of the more saintly public figures of the 20th century. Born in Alsace (then part of Germany) in 1875 to a pious family, he grew up rather unremarkably, nurturing his talents in music while studying theology at the universities of Strasbourg, Berlin and Paris. He excelled in theology and won academic appointments at various German and French universities. At the same time he was pastoring large churches and playing the organ to great acclaim (he became famous in musical circles for advancing a new interpretation of Bach). His books, particularly "The Quest for the Historical Jesus," stirred great controversy—and

admiration—and were followed by many other scholarly works on Christology and other divinity topics [2].

Then in the autumn of 1905, Schweitzer mailed a letter to his parents stating that he “had resolved to be a jungle doctor” [3]. Though everyone attempted to persuade him otherwise, he enrolled in medical school at the age of 30 (such second-career physicians were unheard of in Schweitzer’s day). He found his studies challenging, yet immensely rewarding, and graduated in 1913. Immediately thereafter, he went to the steaming jungles of Gabon (then French Equatorial Africa) to carve out his field hospital at Lambarene. This unique hospital was meant to imitate African village life, with sleeping quarters for patients’ families, cooking areas and livestock running freely underfoot. The horror with which European visitors, habituated to the gleaming corridors of sanitized Western hospital life, greeted these arrangements was the subject of many stylized encounters throughout Dr. Schweitzer’s 52-year-long career in Gabon [4].

Although he endured serious hardships, such as forced deportation by the French and imprisonment during World War I, Schweitzer spent increasingly long periods of time in his jungle hospital, while nourishing his academic career in theology, philosophy and music. His efforts culminated in a Nobel Peace Prize in 1952, and he ended his career as an ardent opponent of nuclear engagement—a position rooted in his deep reverence for life of all kinds. He died quietly, at the age of 90, in his Gabonese hospital.

What does Albert Schweitzer’s example offer physicians and students today? His armor, after all, was not without its chinks. When the *New York Times* eulogized him in 1965, it noted his paternalistic ideas towards European involvement in Africa, his unsavory disbelief in racial equality and the degree to which he insisted on control of his hospital [5]. He also harbored a curious insistence that venturing out after dark with his head covered protected him from malaria, Ronald Ross’s discoveries notwithstanding [6].

There is much in his life for us to imitate. Schweitzer was an ardent admirer of philosopher Immanuel Kant and of the first principle of Kantian ethics—that one may never use people merely as means to an end. International medical work, in an age of rock-star debt relief and resume-padding, is fraught with rather subtle temptations in this regard. “If I do the rotation in Africa, it’ll really impress the residency program directors;” or, “I’d never have this much autonomy as a PGY-2 in the States—I can really hone my diagnostic skills.” Schweitzer went to Africa because he saw a glaring need; he wasn’t motivated by any sort of gain, and he always saw his patients as what they were—suffering human beings who needed what relief his attentions could provide. In fact, he saw his mission in Gabon as discharging a *positive duty*, rather than doing something superhuman. He was fond of exhorting his listeners to act with compassion. Do something—grand or small—for those who have need of a man’s help, he often counseled, something for which you get no pay but the privilege of doing it.

In a similar vein, he was not motivated to go to Africa out of a thirst for the exotic or a desire to regale his colleagues with anecdotes of derring-do. Schweitzer's motivations for working in Africa were in the end entirely mundane: he saw a niche and believed he could fill it. Much of the cynicism of my admissions dean is fueled by a perception that students work overseas only to collect passport stamps in various arcane scripts.

Schweitzer firmly supported the idea of a global human community. Many philosophers and ethicists, of his day and ours, claim that each of us has a duty to aid those closest to us before it is ethically permissible to help those farther away—the “charity starts at home” notion. In Schweitzer's scheme, we're all equally close. You're not helping a Gabonese or a German, you're helping a person.

Finally, Schweitzer showed us that being a good doctor is firmly rooted in being a good human being. He refused to compartmentalize his thought and activities—he was never Schweitzer the theologian, or Schweitzer the musician or Schweitzer the physician; he was simply Albert Schweitzer. Likewise, we young physicians need not neglect our other roles in order to practice medicine abroad. We are still children, parents, community members, spouses, religious adherents, teachers, writers—and yes, dean, even rugby players.

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History of medicine

Medical volunteerism in Africa: an historical sketch

by Ololade Olakanmi and Philip A. Perry, MSJ

The current outpouring of international support for medical relief work in Africa, due in large measure to the HIV/AIDS crisis, exemplifies altruism and embodies medicine's core values. These volunteer efforts proceed along several fronts: endeavors on the part of indigenous Africans to build national public health systems, volunteering by students from overseas, ongoing medical missionary activities of churches and world religions, purely humanitarian services provided by modern medical missionaries like Doctors Without Borders and the initiatives of other organizations set up to deal with specific crises. This article sketches the history of volunteerism in Africa from the early religious and colonial medical programs through current humanitarian programs, assessing the role of student volunteerism along the way.

History of missions

There were about a dozen medical missionaries worldwide in 1850. In Africa, this was the time of David Livingstone, the Scottish explorer and missionary [1], and Cardinal Charles Lavigerie, a brilliant Catholic mission strategist, who in the 1860s sent African medical students to study Western medicine at the University of Malta [2]. Even the earliest missionaries found that having the capability to meet the medical needs of indigenous populations opened up new towns and villages "to the messengers of the gospel" [3].

Missions to Africa gradually adopted a more professional outlook on medicine, providing more than the rudimentary services delivered by earlier religious missionaries. Albert Cook, for example, who worked in Uganda with Church Mission Society pastors beginning in 1896, founded Mengo Hospital and is credited with bringing scientific medicine to Uganda [4, 5].

The most famous medical missionary, undoubtedly, was Albert Schweitzer. After receiving his MD from the University of Strasbourg in 1913, Schweitzer established a hospital at Lambarene in French Equatorial Africa (Gabon), and spent most of his life there as a doctor, surgeon and administrator in the hospital. For Schweitzer, Africa was the place where the people were most in need of medical help. Lutheran faith influenced his mission of healing and "reverence for life" [6].

Student involvement was important to the missionary field. The Student Volunteer Movement of the 1880s-1950s, for example, was an historical precedent for today's student interest in global service. It fed recruits into the missions of Africa, Asia and South America. By 1910, there were more than 10,000 religious missionaries in the field in Africa—6,000 Protestant and 4,000 Catholic [7]. Roughly 10 percent of these were truly medical missionaries.

By 1925, missionary fervor was peaking. The World Missionary Atlas notes more than 1,000 missionary-physicians from America and Europe that year, 139 of whom worked in Africa [1]. Mission hospitals were often staffed by one doctor and his assistants—a practice that regularly led to burn-out. More enlightened missionary groups try to overstaff clinics and hospitals to prevent that from happening.

Medical missions can have a long-lasting presence in an area. For example, a Freetown, Sierra Leone medical mission can trace its evolution from the 1800s when members of the Evangelical Association arrived. The present Kissy UMC Eye Hospital in Freetown is a specialty clinic built by American Methodist volunteers, and is staffed by about 20 local medical personnel working with volunteer surgeons from the U.S. who treat cases of glaucoma, cataracts and river blindness (onchocerciasis), among other diseases [8]. The hospital reopened in 2001 after closing during a coup and civil war in 1999.

Dennis P. Burkitt, MD, exemplifies the importance of extending medical research to African populations. His work with Ugandan children resulted in the identification of Burkitt's Lymphoma, an aggressive leukemia-like cancer that Burkitt linked to co-infection with Epstein-Barr virus and malaria—a discovery that proved vital for cancer research. By the 1960s, Burkitt was also able to use chemotherapy to cure his lymphoma patients [9].

While Protestantism and Catholicism took root in Africa, economic development and modern medicine were uneven in their spread. Consequently, many countries have only one medical school and few resources for promoting public health. So the charitable missions of today emphasize medicine more than conversion to Christianity. As one religious scholar says, "European and American Protestant church missions have turned to medical work and community development work, leaving the preaching and evangelism to African Christians" themselves [10].

Governmental organizations take up the challenge

In the 20th century, medical humanitarian interventions grew decidedly larger in scope. Illnesses and diseases that had previously been the problem of individual sovereign states became an international concern, threatening the health and national security of everyone. This new, more global perspective on public health naturally required an increase in the involvement of government entities as well as greater cooperation and coordination among nation-states. An early example at such efforts was the League of Nation's Far Eastern Bureau, whose revealing epidemiological

data collected in Africa during the mid 1920s made it possible to coordinate successful international initiatives to promote global public health [11].

Widespread medical humanitarian work in Africa did not gain momentum until the United Nations (UN) (which replaced the League of Nations) created the World Health Organization (WHO) in 1945. One of WHO's first major campaigns attacked yaws, a debilitating and disfiguring condition caused by the bacterium *Treponema pertenue*, that affected millions of children in developing countries, including West Africa. The efforts of WHO to combat yaws were supported by the UN International Children's Emergency Fund, established in 1946 [12]. Aided primarily by penicillin, WHO's public health initiative was able to reduce the global incidence of yaws greatly between 1954 and 1963 [13]. WHO initiated similar disease-specific strategies well into the 1970s, with tuberculosis, malaria and smallpox as its primary targets. One of WHO's greatest achievements was its successful campaign to eradicate smallpox, with the last naturally occurring case in Somalia in 1977 [13].

The Peace Corps was established in 1960 after an inspiring speech given by then Senator John F. Kennedy to students at the University of Michigan, urging them to devote two years to living and working in developing countries. Coordinated by the U.S. Government, the Peace Corps today sends thousands of volunteers (usually young adults) to Africa every year to facilitate health education efforts, to establish support services for orphaned children and HIV/AIDS-infected communities and even to provide direct medical care [14].

When the Foreign Assistance Act was signed into law in 1961, the U.S. Agency for International Development (USAID) was created as part of the act's mandate. Under the auspices of USAID, The Bureau of Global Health supports field health programs, provides relief supplies and needed technologies, and promotes "research and innovation" for addressing specific global health issues such as child, maternal and reproductive health, and diseases like malaria, tuberculosis and HIV/AIDS both in Africa and on other continents [15].

The presence of the International Red Cross and Red Crescent, WHO and other humanitarian groups expanded rapidly in Africa and Asia throughout the 1960s, due largely to the grim after-effects of the newly won independence of many countries in those regions [16].

The era of nongovernmental organizations

Until the 1960s, international humanitarian organizations tended to adopt a "magic bullet" approach to public health, predominantly choosing to mount large campaigns against individual diseases [13]. But, as Stern and Markel note,

by the 1970s postwar optimism had faded and was gradually replaced by an awareness that the eradication of specific diseases would translate into few if any gains in regions that lacked sewage systems, potable water, adequate food, health

clinics, and rudimentary knowledge of illness and treatment, to name but a few crucial positive contributors to a population's general health [17].

Out of dissatisfaction with the narrow, overly bureaucratic, often inefficient and, at times, morally suspect relief work sponsored by larger, international medical humanitarian societies and governmental organizations, many individuals opted to form independent nongovernmental humanitarian organizations (NGOs).

One of the first NGOs was Africare. Founded in 1970 by 17 U.S. volunteers led by William O. Kirker, MD, and Barbara Jean A. Kirker, Africare established itself in West Africa (Maina-Soroa Hospital in Diffa, Niger) during a period of civil unrest, severe drought and famine. With an initial budget of only \$39,550 in 1971, and headquarters in the basement of the house of C. Payne Lucas, director at that time of the Peace Corps Office of Returned Volunteers, Africare focused on combating the adverse health consequences of the drought. Africare "is the oldest and largest African-American organization in the field" [18].

Perhaps more well known is Medecins Sans Frontieres (MSF) or Doctors Without Borders, established in the aftermath of the Nigerian civil war amid widespread famine. MSF was founded in 1971 by a small group of young French physicians and journalists led by Bernard Kouchner, MD, after his return from relief work among the Ibo in Biafra. The founders of MSF established their NGO in part because WHO and the International Red Cross failed to address the social, political and structural conditions which impact public health and in part because the Red Cross's policy of neutrality was construed by MSF as unjustifiably complicit toward the dehumanizing tactics used by the Nigerian army. In 1980, 16 senior members of MSF, including Kouchner, broke from MSF to found Medecins du Monde (MDM) or Doctors of the World, which also provides medical relief in needy areas [19].

MSF's and MDM's philosophy—"Illness and injury do not respect borders"—inspired countless other grassroots, medical humanitarian NGOs [20]. In the U.S. today, their members number in the thousands. Some of the larger organizations are International Medical Corps (1984) [21], Health Volunteers Overseas (1986) [22] and Doctors On Call for Service (1994) [23]. Typically, each NGO has its own specific focus, e.g., health education, resource allocation, medical training, direct medical care or a combination thereof.

Response to the AIDS crisis

By far, the most pressing global health crisis of our times is the pandemic of HIV/AIDS [24]. UNAIDS, a large UN initiative on HIV/AIDS, estimates that about 40 million persons worldwide are carriers for HIV, with millions of new infections every year. Most of these people (about 25 million) live in sub-Saharan Africa [25]. At first, there was a paucity of medical relief being funneled to Africa to combat the HIV/AIDS crisis. By the late 1980s and 1990s, however, the world quickly realized that HIV/AIDS did not respect national boundaries and, thus, required proactive measures in areas hardest hit by the epidemic.

International responses have resulted in the formation of the USAID international HIV/AIDS program (1986) [15]; UNAIDS (1995) [26]; the U.S. Global AIDS Program (2000) [27]; and the UN Global Fund to Fight AIDS, Tuberculosis and Malaria (2001) [28], among others. One of the most ambitious new programs is The President's Emergency Plan for AIDS Relief (PEPFAR). Established by the Bush Administration in 2003, PEPFAR "is the largest commitment ever by any nation for an international health initiative dedicated to a single disease—a five-year, \$15 billion, multifaceted approach to combating the disease in more than 120 countries around the world" [27]. Also contributing significantly to the effort are The Bill and Melinda Gates Foundation, the William J. Clinton Foundation and numerous other groups in the private sector [24].

Frequently overlooked by historians is the involvement of medical students in the promotion of global health in general and in the fight against HIV/AIDS in particular. Notably, the American Medical Student Association (AMSA) mobilized students around the topic of international health beginning in 1967 [29]. Medical students also established the International Federation of Medical Students' Associations (IFMSA) in 1951 to facilitate the arranging and scheduling of clinical clerkships in international health. Founded in the Netherlands and now headquartered in the U.K., IFMSA coordinates activities among students and medical schools in Africa and around the world [30]. Along with AMSA and IFMSA, groups like the Foundation for Sustainable Development (1995) [31], Students for International Change (2002) [32] and HIVCorps (2004) [33] also help students who wish to address global health concerns arrange field experiences in Africa. Moreover, there is now a bounty of international service learning programs for young adults and U.S. medical school students that participate in global health electives abroad. The number of U.S. medical students participating in international health electives has risen substantially in the last few years from 22.5 percent in 2004, to 27.2 percent in 2006 [34].

Conclusion

Promoting public health in Africa will require the combined diligence of indigenous, religious, governmental and nongovernmental groups. Unfortunately, bureaucratic barriers often prevent these groups from collaborating. As just one example, in Kenya, Catholic Church-related clinics provide 40 percent of all HIV/AIDS care (by its own estimates, the Catholic church provides about 25 percent of all care worldwide). Yet the Global Fund cannot be easily accessed by local churches or church-related clinics, such as those in rural Nairobi province—the sole providers there [35]. One lesson from history is that closer coordination among groups whose mission calls them to serve the poor of Africa might alleviate current problems in the HIV/AIDS crisis. It is imperative that such unified efforts are encouraged and fostered in the 21st century.

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Suggested readings and resources

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