

H&P

The Stanford Medical Student Journal

Volume 13, Number 2 Winter 2009



Crossing Borders

Contents

- 4 **Understanding Tibetan Medicine: A Case of Esophageal Cancer in Xining, China**
Jen Pretz & Kristen Whitaker
- 7 **Macerated Stillbirth and Postpartum Hemorrhage: A Case from Ndola, Zambia**
Sara Stern-Nezer
- 10 **Research Across Political and Socioeconomic Divides: Best or Most Appropriate Treatment?**
Harry Flaster
- 14 **Laying the Groundwork: Stanford and the Response to Global Health Needs**
Mike Scahill
- 16 **The Future of Stanford Med Abroad: A Need for Community-Centered Approaches**
Daniel Winetsky
- 18 **International HIV Prevention: The President's Emergency Plan for AIDS Relief**
Ryan Schubert
- 20 **Traveling Scholars—Minus the “Traveling”**
Elise Min
- 22 **Achieving the Impossible: Global Eradication of Smallpox**
Ron Alfa
- 24 **Physicians Abroad: A Photoessay**
Stesha Doku
- 26 **Anne Fadiman: Exploring the Interactions of Culture, Character, & Medicine**
Blake Charlton
- 28 **One Day... Someday... in Oaxaca: A Student's Reflection on the Experience of Living in the Culture Capital of Mexico**
Julia Rasooly
- 29 **Ducks Swimming in a Stanford Fountain**
Megan Insko
- 30 **Leader in Medicine: Dr. Samuel So**
Roberto Valladares

clinical case reports

ethics

perspectives

features

humanities

leaders in medicine

H&P

The Stanford Medical Student Journal

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Editors' Note

The world as we understand it exists by virtue of the borders that define it. And, whether they are geographic, political, or socioeconomic, we have learned that if we hope to truly affect change, it is necessary to have the ability to look beyond these boundaries. In our own field, providing access to care and medical treatment for all people remain two of the most challenging problems we face on a global scale. The need for physicians to share knowledge and skills, to provide services around the world, and be willing to cross borders is increasing every day.

Because of the challenges we face, and because of the increasing awareness among students at Stanford Medical School regarding issues of international health, we felt it was appropriate for *H&P* to take a closer look at student activities and thoughts on a global level. Stanford Medicine, while making drastic changes on the home front, also has students traveling abroad to learn from and provide service to people of different parts of the world. This quarter we've concentrated on the work of these students.

The issue begins with two case reports. The first, co-written by Jen Pretz and Kristen Whitaker, focuses on a case of esophageal cancer from a Tibetan medical perspective. In the second, Sara Stern-Nezer writes about a challenging case of postpartum hemorrhage in Zambia. Following the case reports, Harry Flaster presents an intriguing ethical dilemma in which researchers find themselves in when they must choose between the most cost-effective and most efficient drugs for research and distribution.

In this quarter's issue, we have also included two essays under a temporary "perspectives" section; these articles deal with the changes occurring at Stanford in regard to global health. Both Mike Scahill and Daniel Winetsky write from unique and knowledgeable vantage points about the needs, deficits, and triumphs of our school's endeavors on the international scene. Their suggestions are noteworthy as the school continues developing programs for international medical service and research.

Our features for this edition cover a wide range of issues in international health. The first piece, written by Ryan Schubert, provides excellent background on the PEPFAR program, as well as a valuable assessment of the program's strengths and weaknesses. Next, Elise Min takes us on the wild ride that was her research in India this past summer, and gives us the results of the first study to look at prehospital obstetric emergencies in the country. Finally, Ron Alfa concludes the section with an historical look at the eradication of smallpox and the intense effort that went into exterminating the disease once and (hopefully) for all.

The humanities section begins with a fantastic photoessay compiled by Stesha Doku. Also included is a memorable interview between Blake Charlton and Anne Fadiman, author of *The Spirit Catches You and You Fall Down* – a novel that explores the depth and importance of cultural understanding between physicians and patients. Adding to this section, Julia Rasooly writes about her experiences traveling, working, and volunteering in Oaxaca, Mexico, this past summer. And rounding out the humanities section, we've included an amazing painting by Megan Insko featuring ducks in a Stanford fountain. The young ducks pictured remind us of our own place on the medical ladder – seemingly inert but quietly brimming with ideas and the potential to make valuable changes in the health of the world.

Last but not least, this issue includes a Leaders in Medicine article by Roberto Valladares, in which he interviews Dr. Samuel So. Dr. So is world-recognized surgeon who directs the Asian Liver Center. His work both here in our local communities and in communities abroad is inspiring to many.

While the world seems to continue to shrink on a daily basis and the health needs of people everywhere continue to grow, it is our hope that the reports, stories and artwork from this issue serve as inspiration to both students and faculty here at Stanford Medicine. We have the ability, now, to make significant changes in the health of the world – we just need to continue reaching across borders.

Sean Sachdev
Mike Sundberg
Editors-in-Chief, *H&P*

The title H&P reflects the importance of the basic history and physical examination in clinical medicine in every corner of the world. It also represents Hygeia and Panacea, two daughters of Asclepius. In Greek mythology, Hygeia is the goddess of welfare and the prevention of sickness, while Panacea is the goddess of healing and cures. We believe that these figures represent the two facets of our medical education—to treat and cure illnesses while promoting the welfare of our patients by preventing disease. The title H&P also reflects our interest in the metaphors of medicine. What an illness means to a patient may be as important as the diagnosis itself, and a practitioner of the art of medicine attends to each of these meanings.

Understanding Tibetan Medicine: A Case of Esophageal Cancer in Xining, China

Jen Pretz, SMS III, & Kristen Whitaker, SMS III

Recently, traditional Tibetan Medicine, with its nearly 4000 years of history and practice, has gained increasing attention and acceptance worldwide. Previously, there were no official medical electives for students to study traditional Tibetan medicine in China. The collaboration between the Qinghai Provincial Tibetan Medical Hospital and Stanford Medical School is the first of its kind for both institutions. We were a part of the second group of students to participate in the four-week family medicine elective clerkship in the summer of 2008. Below is a case report of a patient we saw while studying in Xining:

TM, a 64-year-old Tibetan farmer, presented to Qinghai Provincial Tibetan Medical Hospital in Xining, China with epigastric pain, difficulty swallowing, feelings of fullness, and vomiting after meals. Symptoms had been present for eight months. Patient had previously sought help from a Tibetan mountain doctor and was treated with herbal medicines.

The Tibetan medical system is one of the world's oldest known medical traditions. It incorporates components of indigenous, Ayurvedic, Chinese, and Greek medicine. It is an essential part of Tibetan culture, is closely tied to Buddhist theory, and has been developed through many centuries. Historically, Tibetan doctors were referred to as "mountain doctors," because they served and needed to be accessible to a nomadic population that lived at high elevations on the Tibetan plateau, far away from large cities and traditional hospital settings.

The patient traveled to the hospital in Xining because of worsening of the above-mentioned symptoms. In addition, he had also recently developed diarrhea, fatigue, and daytime sleepiness. He noticed that his clothes were fitting looser than before, and he attributed his illness to be a result of having eaten a bad egg.

A healthy body is in a delicate state of dynamic equilibrium. Traditional Tibetan medicine holds that four factors contribute

to maintaining the body's homeostasis: diet, lifestyle/behavior, seasonal variation, and spiritual influences. Of these four, diet and behavior are modifiable and under the control of the patient. They are also the most emphasized in the Tibetan assessment of causes of disease. The relationship between disease, improper dietary habits, and unhealthy behavior is fairly well established in Tibetan as well as Western medicines. For this patient, tracing his illness back to a specific event, consumption of a bad egg, is a crucial element to making his diagnosis.



Kristen Whitaker

Tibetan evaluation of his disease, after an extensive medical interview, included assessment of his pulse, tongue, and urine. His pulse was found to be weak, slow, and sunken in quality overall. The strongest pulse was felt over the large intestine location and the weakest pulse was over the stomach location. His tongue was whitish-blue in color with a very thick coating. The patient reported that it felt dry. His urine was clear with both big

("like yak eye") and little bubbles upon mixing. The odor, vapor, sediment, and surface layer qualities of the urine were non-contributory. Based upon this combined analysis the patient was diagnosed with an imbalance in his 3 nyipas, specifically increased bekan and rLung.

Traditional Tibetan medicine holds that the body and the universe are composed of five basic elements: earth, fire, water, wind, and space. The three nyipas refer to the body's principal energies. The names given to the three nyipas are bekan, rLung, and tripa. Each is thought to be a manifestation of one or two of the five basic elements, and they each have very specific characteristics that are used to describe that nyipa when it is out of balance. Although they support our life, they also have potential to cause affliction and disease, and when they are disturbed they cause abnormal functioning that result in physical and mental suffering. Bekan is a manifestation of the elements earth and water and is characterized as cold, oily,

heavy, blunt, smooth, firm, and sticky. Generally, *bekan* is responsible for firmness of the body and stability of the mind. It induces sleep, connects bodily joints, generates tolerance, and lubricates the body. *rLung* is a manifestation of air and is characterized as rough, light, cold, subtle, hard, and mobile. It is responsible for physical and mental activities, respiration, urination, defecation, development and delivery of the fetus, and menstruation. It sustains life by acting as the medium between the mind and body. *Tripa* is a manifestation of fire and is characterized as oily, sharp, hot, light, malodorous, fluid, and moist. It is responsible for hunger, thirst, and digestion. It promotes bodily heat, gives luster to the bodily complexion, and provides courage and determination.

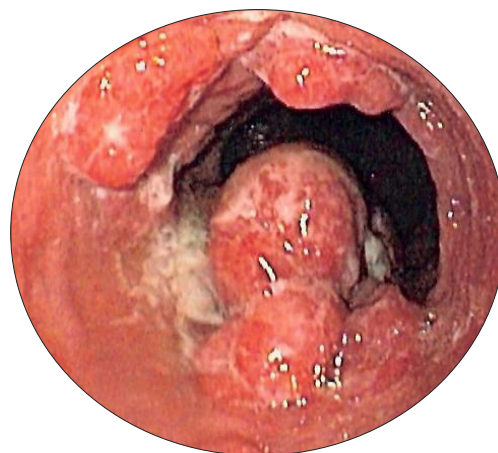
Diagnostic measures taken by Tibetan doctors to assess which nyipal imbalance is occurring include analysis of the pulse, the tongue, and the urine.

Pulse: When taking the radial pulse, the doctor places his index, middle and ring fingers on the wrist of the patient. First, an overall quality is described. Next, the health status of individual organ systems is assessed by the quality of the pulse beneath each finger. For example, the pulse under the index finger of the physician's right hand evaluates the status of the heart and colon. In the case of our patient, his pulse was exceptionally weak under the finger that evaluates the stomach and his pulse was exceptionally strong under the finger that evaluates the colon, indicating that the imbalance of the *nyipa* is occurring in the epigastric area and gastrointestinal tract.

Tongue: The tongue is analyzed based on color, texture, dryness, and scalloping. A healthy tongue is red, smooth, moist, and flexible. The whitish color and thick coat of our patient's tongue is a manifestation of the imbalance in his *bekan nyipa*. The dryness that the patient described is a manifestation of the *rLung* imbalance.

Urine: Urinalysis is one of the most important diagnostic techniques in Tibetan medicine. An experienced Tibetan physician can detect almost all disorders on urinalysis alone. Urine should be examined at three different temperatures: warm, luke-warm, and cold. Just-voided urine is analyzed for color, steam, odor, and bubbles. Luke-warm urine is analyzed for sediment. Lastly, cold urine is analyzed for any changes in the above characteristics. The imbalance of *bekan* in our patient was evidenced by the lack of sediment and small bubbles in his urine. The clear coloring and large bubbles were manifestations of an *rLung* imbalance.

Diagnostic data is evaluated cumulatively to look for overall patterns and to indicate a therapeutic course. Individual characteristics of pulse, tongue, urine, and signs and symptoms imply imbalances of the *nyipas* and specific diseases. Each piece of information collected from the patient can indicate a



Endoscopic image of esophageal adenocarcinoma
Source: Public Domain Release (Samir), 2007

different *nyipal* imbalance, but what is most important is the net sum of these imbalances. The Tibetan doctors concluded that TM's disorder was primarily an imbalance of *bekan* and *rLung*, specifically in the esophagus.

The Tibetan doctors consulted the Western doctors who worked at the Qinghai Provincial Tibetan Medical Hospital on TM's case. After a discussion with the patient, they collaboratively decided to have the patient undergo endoscopic biopsy, a Western procedure available at this Tibetan hospital. Based on the biopsy, TM was diagnosed with esophageal cancer.

The Tibetan understanding of cancer is that it occurs in two forms. A cancer that develops from spiritual origins is caused by bad karma accumulated in past lives. This is typically treated with mantra and ritualistic healing. Cancer arising from more organic origins is caused by a poor diet or unhealthy behaviors. This form is treated medicinally. Since the bad egg was presumed to be an inciting factor in our patient's disease, he was treated for an organic cause.

The patient was started on a treatment course that was comprised of four components of Tibetan medicine. Diet modifications included incorporation of soup and cow's milk. Behavioral modifications involved mental and physical rest and avoidance of sleeping during the day. Moxibustion, an external Tibetan medical treatment involving incense burning, was performed on the skin over the 15th vertebra (T8). Oral medication included herbs, which were specially chosen to counteract the imbalance in his *nyipas*, and special cancer adjuncts, specifically yak blood and animal musk.

Throughout time, humankind has depended on nature for sustenance and survival. Accumulated knowledge and practical experience has guided Tibetans to discover certain remedies for common ailments from natural sources. Tibetan



Kristen Whitaker

theory states that everything on earth has medicinal value. The Buddhist view of life is that a human being is a composite whole of mind and body. Thus the Tibetan art of healing is an integrated holistic approach to health care. Herbs, in a variety of preparations and forms, are the core of Tibetan internal medicines. These are supplemented with various external treatments that include moxibustion, massage, medicinal steam baths, acupuncture, and venesection (blood-letting).

Because the patient presented at what was presumed to be a late stage of his disease, his prognosis was poor. Although the patient's preference was for strict Tibetan medicine, his doctors felt this was unlikely to offer him a cure. At the time of our involvement his doctors were in the midst of consulting Western doctors and counseling the patient about Western treatment options.

Western medicine's understanding of esophageal cancer is that it is a highly lethal malignancy. The tumor disseminates early and is often not detected until an advanced stage. Approximately 16,470 people are diagnosed each year in the United States, and 14,280 are expected to die from this disease [1]. Ninety-five percent of esophageal cancers are squamous cell (SCC) or adenocarcinoma (AC). Esophageal SCC and AC differ in a number of features, including tumor location and risk factors. Major risk factors for SCC include smoking and alcohol use. Major risk factors for AC include Barrett's esophagus with specialized intestinal metaplasia (a complication of gastroesophageal reflux disease), obesity, and smoking [2].

Increasingly Tibetan patients, especially those who make the trip to Qinghai University Tibetan Medical Hospital where Tibetan and Western doctors practice side-by-side, are exposed to the diagnostic and therapeutic measures of Western medicine. This overlap in cultures and ideals is exciting to many, but can still be very difficult to navigate. Modern Tibetan doctors do receive some formal training in Western medication, a feature of their education that brings

concern to many of their elders. Pure Tibetan physicians feel that the incorporation of Western medicine reduces the senses of the students and makes them less apt to learn some of the admittedly more subtle Tibetan diagnostic techniques that take decades to develop. Those who practice Western medicine fear that Tibetan use of some Western techniques runs the risk of harming patients because they have only had partial teachings and exposures. The patrons of the hospital also have mixed views. Some patients are excited to have access to more modern medical techniques, yet others are afraid because they do not know or understand it. There is no Tibetan translation for endoscopy, thus patients are at a real disadvantage when this has potential to be used in their care. They are thus asked to place deep trust in their physicians. Despite their differences, at the crux of both Tibetan and Western medicine is a sincere interest in understanding disease and a strong desire to heal.

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Jen Pretz

Macerated Stillbirth and Postpartum Hemorrhage: A Case from Ndola, Zambia

Sara Stern-Nezer, SMS IV

A 32-year-old, postpartum woman, gravida 6, para 5, presented with hypotension and hemorrhage, status post delivery of a macerated stillbirth in the third trimester.

AM is a previously healthy woman from Chipulukusu, Ndola, Zambia, at 34 weeks gestation who presented to a local maternity clinic with onset of labor pains. The mother had been followed for prenatal counseling prior to this date – including nutrition counseling – and fetal heart tones had been monitored at each visit using a fetal Doppler monitor. No ultrasound had been performed, owing to the lack of availability in the area.

The public health system in Ndola contains six clinics throughout the city that have maternity units. There is also one hospital in the center of the city, and the clinics are spread peripherally around the area. There are no obstetricians at the clinics; midwives perform almost all of the labor-related tasks. There are a few physicians associated with the clinics, but they work more in the outpatient section and do not staff the maternity clinic. Health care at these sites is very inexpensive, requiring a nominal fee for delivery. However, the clinics are often short on supplies, including linens, fluids, oxygen, suture needles, and official papers for documenting births. Often, the only available suture is 6-0, which is too small for repair of vaginal lacerations commonly seen postpartum. Additionally, blood transfusions are not performed at these clinics and patients must be transferred to a hospital if transfusion becomes necessary. Ambulances are available but can sometimes take hours to arrive, and patients may sometimes have to arrange private transport to the hospital. Prenatal care is free of charge and many women take advantage of this care. During prenatal visits, midwives focus largely on proper maternal nutrition and prevention of maternal to child transmission of HIV.

At the time of presentation, AM delivered a macerated stillborn fetus (MSB) through spontaneous vaginal delivery. Active management of the third stage of labor was initiated after delivery, and vaginal bleeding appeared to have stopped. Patient was transferred from the labor ward to the postpartum ward.

Stillborn fetuses are relatively common in the US, with the National Center for Health Statistics demonstrating a fetal mortality rate of 6.5 per 1000 births in 2001. The term “stillbirth” is defined differently in various parts of the world, with

some laws specifying that to be deemed a stillbirth, a fetus must survive beyond the mid-second trimester. The WHO defines it as “complete expulsion or extraction” that occurs “irrespective of the duration of pregnancy and which is not an induced termination of pregnancy.” Factors that increase maternal risk for stillbirth include multiple gestation, multiparity, non-vertex presentation, male fetal sex, and maternal age (with both high and low ages carrying an increased risk). Maternal disease, such as infections, metabolic diseases, preeclampsia, and hypertension can also increase the risk of stillbirth. Stillbirths can be separated into fresh stillbirths (FSB) and macerated stillbirths (MSB), although the designation may differ in different health settings.

The patient began to bleed thirty minutes after transfer to the postnatal area, located one room over from the labor ward in the clinic. On physical exam, the patient appeared



Kaye McClellan

clinical case reports

diaphoretic and in significant distress. She had mental status changes and was oriented only to person. She was hypotensive, tachycardic, tachypneic and afebrile. Pelvic exam revealed a soft, open cervix, with very little uterine tone. One liter of normal saline was administered, and uterine massage was performed. Additional products of conception were expelled from the uterus during massage, but bleeding continued. An ambulance was called to transfer the patient to the local hospital and oxytocin was administered again. Blood was drawn for cross-matching, and the patient was sent to the hospital along with the midwife who had been providing her care.

Postpartum hemorrhage (PPH) is defined as a blood loss of more than 500mL following vaginal delivery or a blood loss of more than 1000mL following cesarean section. It is the leading cause of maternal mortality worldwide, with the majority of the morbidity and mortality burden occurring in women in developing countries. Yet, even in developed countries, PPH ranks in the top three causes of maternal mortality. Along with the high mortality rates in many parts of the world, lifelong morbidities are also associated with PPH, such as fistula formation, renal failure, Sheehan's syndrome, and acute respiratory distress syndrome. The most common cause of PPH is uterine atony, most commonly found in women with multiple previous pregnancies or in the setting of uterine infection, medications (uterine relaxants), uterine inversion, uterine fatigue, or retained placenta postpartum. Other under-

lying etiologies that increase the risk of PPH include trauma, coagulation defects, hypertension, large for gestational age, placenta accreta, induction of labor, and instrumental delivery. Postpartum hemorrhage can often be avoided by careful compliance with the active management of the third stage of labor. The third stage of labor includes the period between delivery of the infant and delivery of the placenta. Active management of the third stage of labor has been shown empirically to reduce PPH and numerous studies have supported the efficacy of this treatment in reducing maternal mortality. Active management includes administration of uterotonics, controlled cord traction, and uterine massage.

The patient arrived at the hospital actively bleeding. Two units of blood were administered to the patient upon arrival at the hospital labor ward. Clotting times were estimated using bedside clotting tests, whereby blood is held in one's hand and the number of seconds to clot formation are calculated. The patient's clotting function was clearly dysfunctional, and she was administered another unit of whole blood. At this point, it was estimated that the patient had lost three liters of blood and was unconscious and hypotensive, with pulses barely palpable. Numerous petechiae were noted on lower extremities. Blood was sent to the lab for a complete blood count, comprehensive metabolic panel, and coagulation studies, and the patient was transferred to the intensive care unit (ICU). Fresh frozen plasma was administered and the patient stabilized



Eric Leroux



Anna Lonyai

transiently, before continuing to bleed. She continued to deteriorate and required endotracheal intubation and mechanical ventilation to manage her hypoxia. She ultimately went to the operating room where she underwent dilation and curettage. During this procedure blood clots and retained placental tissue were removed from the uterus, and afterwards the patient returned to the ICU for further transfusion and supportive care. The patient remained intubated for an additional four days. Following a gradual recovery, the patient was ultimately discharged home.

The maternal mortality rate in Zambia remains high. In 1996, the Zambia Demographic and Health Survey estimated that for every 100,000 live births, 649 women died as a result of obstetric complications. Despite downward trends in global maternal mortality in many countries, recent estimates from 2001 to 2002 indicate that maternal deaths in Zambia have increased to 729 deaths per 100,000 live births. By contrast, estimates in neighboring Namibia are around 370 deaths per 100,000 live births, according to estimates from UN agencies. Yet most of these deaths occur in rural areas of Zambia, where access to tertiary care and necessary rehydration/transfusions are not available. Many midwives talk about rural areas and the “wheelbarrow ambulances” used to transport women to local clinics four or five kilometers away. In Ndola, access

can be a problem in terms of transfer time to the hospital, but this is minimal in comparison to rural areas. Despite limited supplies and few obstetricians, the local clinics have remarkably low rates of morbidities and mortalities, with most clinics having no more than one to two mortalities in the past five years. Of the maternal mortalities that have occurred at the clinics, many of them are “babies born away” – meaning the mothers only present to the clinic postpartum, after bleeding has already begun.

Additionally, to aid in this mortality reduction, Ndola has developed an extensive nursing training program, initiated in the late 1990s when the health care system faced a workforce crisis. Money and resources have been diverted into training a new generation of nurses, and students are abundant at clinics, helping to support overworked midwives. Specialized continued education is required to become a midwife, and overall these women are expertly trained in labor and delivery. Practicing active management of the third stage of labor also helps to decrease obstetric hemorrhage. Finally, women who are at high risk for PPH (i.e. multiparum, babies large for gestational age, prolonged first stage of labor) are transferred to the hospital preemptively, in the event that they need surgery or transfusion in the future.

Research Across Political and Socioeconomic Divides: Best or Most Appropriate Treatment?

Harry Flaster, SMS I

Researchers from the United States must choose between two different drug regimens in a pioneering prevention of mother to child transmission (PMTCT) of HIV research project led by a US university and conducted in a poor nation in sub-Saharan Africa. The goal of this project is to evaluate the effectiveness of highly active antiretroviral therapy (HAART) to prevent the transmission of HIV to children. Both regimens are equally effective in reducing transmission, but they differ in cost and safety. The more expensive regimen has minimal side effects, but the cost is beyond what the government of this poor country could afford to provide to the entire population. The less expensive medicine has an FDA warning that recommends against its use. Use of this less expensive regimen could result in severe adverse events (including death) in an unknown number of mothers enrolled in the study. However, should the study demonstrate the efficacy of the less expensive drug in reducing the transmission of HIV to children, this drug could be made available to everyone through existing government resources. The more expensive medicine would not be available to everyone without a generous donation. Which medication should be used? Does the answer change depending on who is conducting the study?

These questions are not easily answered, yet they inevitably and ubiquitously arise in research projects that seek to translate protocols, treatments, or technologies across large socioeconomic gradients. In the PMTCT example just described, the protocols for the use of HAART were developed in countries with the resources to provide the safest medications to their patients. What happens, however, when a research team from the United States introduces HAART to a resource poor country? Should new protocols be developed? If so, is it ethical for an American researcher to use protocols or clinical practices in ways that would be illegal in the United States?

To attempt to answer these questions, it is helpful to examine other examples of dilemmas that arise when researchers adapt clinical standards, technologies, protocols, and cultural practices to a setting defined by severe resource shortages. This article will discuss striking examples of research that used placebo controls when effective (but expensive) medicine was available, and projects that offered no treatment at all to participants in order to study factors that influence the sexual transmission of HIV. In order to protect the vulnerable, ensure that research benefits participants, and ensure that future researchers are able to investigate promising new treatments in poor countries, it is imperative that we evaluate the past history and current practices of research conducted across socioeconomic gradients. In doing so, it is hoped that this article will reinforce the importance of providing an acceptable standard of care to research participants regardless of the setting.

Discordant Couple Trials

Discordant couple trials are a controversial example of research that would be illegal in the United States. These trials examine factors influencing the sexual transmission of HIV between serodiscordant couples, where one partner has



Nicolas Grundmann

H&P Winter 2009

HIV and the other partner does not. These trials often do not offer HIV treatment to participants. One discordant couple randomized-control trial conducted between November 1994 and October 1998 examined the relationship between serum viral load, concurrent sexually transmitted diseases, and other known and putative HIV risk factors. The research team screened 15,127 individuals in a rural district of Uganda, of whom 415 were identified as HIV positive with an initially HIV-negative partner. The researchers then tracked these sero-discordant couples for thirty months, following the viral load of the infected partner and the rate of seroconversion among the previously uninfected partners. The study concluded that “viral load is the chief predictor of the risk of heterosexual transmission of HIV-1” [1]. While treatment for other sexually transmitted diseases was provided, no HIV treatment was offered and seronegative partners were not warned of the status of their partners. This study was published in the *New England Journal of Medicine* and was conducted by the National Institute of Allergy and Infectious Diseases in Bethesda, Maryland in partnership with Makerere University in Kampala, Uganda.

In an accompanying editorial, *New England Journal of Medicine* editor Marcia Angell voiced her hesitation about publishing the study and was direct in her criticism: “It is important to be clear about what this study meant for the participants. It meant that for up to 30 months, several hundred people with HIV infection were observed but not treated.” Furthermore, “The very condition that justified doing the study in Uganda in the first place – the lack of availability of antiretroviral treatment – will greatly limit the relevance of the results there” [2].

The study authors, however, made a strong defense of their research. Ronald Gray and Thomas Quinn pointed out that it was not possible to treat research participants for antiretroviral drugs for several reasons. First, combination therapy was not available until 1996, and monotherapy is not effective. Second, the trial conducted surveys at 10-month intervals in 56 dispersed rural communities. There was no capacity in Uganda to manage antiretroviral treatment on such a scale. They pointed out that the trial was approved by four institutional review boards in Uganda and in the United States and was monitored by the National Institutes of Health in cooperation with representatives from Uganda. Furthermore, they adhered to the Ugandan practice of not informing seronegative partners because of concerns of stigma, discrimination, and violence resulting from involuntary disclosure. While they agreed with Angell that investigators should “provide better care for human subjects than is generally available in the community,” they argued that in both study groups, the care provided far exceeded that available in rural Uganda. Finally, the authors defended the relevance of their research to Uganda, pointing out that the control of sexually transmitted infections for the prevention of HIV infection was directly



Ashley Valentine

relevant to Ugandan health policy [3].

The authors' counterarguments are strong, and grounded in the setting of rural Uganda. They fail, however, to consider the full implications of discordant couple research. It would be wrong to criticize the Ugandan Ministry of Health for their involvement in such a trial, for the Ministry does not have the resources to provide antiretroviral treatment to their people. The United States, however, did have the resources to provide antiretroviral treatment to HIV patients in Uganda. By only providing funds for research, and not funding treatment, the National Institutes of Health, as representatives of the United States, were sending the message that they were only interested in research for the sake of improving clinical outcomes in their own country. Or to put it another way, as told by a woman in Haiti who participated in an HIV trial but did not receive treatment, “We’re good enough to study but not good enough to care for” [4].

This trial is not an isolated case. A brief review of the literature elicited several recent publications for HIV discordant couple trials, and there are on-going discordant couples trials in Zambia. Thirty-six years after the infamous Tuskegee trial for syphilis, some researchers from the United States



Shaundra Eichstadt

and other wealthy countries are involved in studies that do not provide available and efficacious medications to research participants in dire need.

Zidovudine Versus Placebo Trials

There are other examples of research that invite controversy. In the early 1990's, the Pediatric AIDS Clinical Trials Group Protocol 076 (PACTG 076) trials in the United States and France tested the efficacy of long-course Zidovudine (ZDV or AZT) in the PMTCT of HIV. Zidovudine, a nucleoside reverse transcriptase inhibitor that disrupts the reverse transcription of RNA to DNA, was the first effective antiretroviral for HIV. The results of the ZDV trial were dramatic; 8.3 percent of babies born to HIV positive women receiving long-course ZDV became infected with HIV after 18 months, whereas 25.5 percent of children born to women who received the placebo became infected [5].

Yet, even after the US Public Health Service recommended the use ZDV for PMTCT in 1994, trials were conducted in Burkina Faso, Côte d'Ivoire, and in Thailand that compared short-course ZDV to placebo, instead of comparing long-course ZDV to short-course ZDV. These trials were funded in part by the National Institute of Health and the Center for Disease Control and Prevention. In fact, a review by Lurie and Wolfe in 1997 counted 15 studies taking place in developing countries in which some or all of participants were not receiving antiretroviral therapy to prevent mother-to-child transmission of HIV [6]. According to Marcia Angell, "The fact remains that many studies are done in the Third World that simply could not be done in the countries sponsoring the work. Clinical trials have become a big business, with many of the same imperatives. To survive, it is necessary to get the work done as quickly as possible, with a minimum of obstacles. When these considerations prevail, it seems as if we have not come very far from Tuskegee after all" [2].

The institutions that sponsored the trials and their defenders, however, make a strong argument in favor of placebo-controlled trials. One important dilemma over the use of the ZDV control is whether the knowledge gained from such a study would be useful for the sponsoring country, the country being tested, or possibly by both. While using ZDV as a control would be useful for worldwide knowledge, it would not be as useful for countries that cannot afford the long-course ZDV option for their population. In other words, a study comparing the use of short-course ZDV to placebo would be more useful to a poor country. At the time these studies were conducted, the cost of ZDV for one HIV-infected mother and her child in a representative country like Malawi was more than 600 times the annual per capita allocation for health care [7]. Indeed, the sponsors of the placebo-controlled studies, Harold Varmus, speaking for the National Institute of Health, and David Satcher, speaking for the Center of Disease Control and Prevention (CDC), both addressed this. They wrote in the *New England Journal of Medicine* that "trials that make use of impoverished populations to test drugs for use solely in developed countries violate our most basic understanding of ethical behavior" [8]. Dr. Varmus and Dr. Satcher argued that the use of a placebo control is ethically acceptable, since assignment to the placebo group would "not carry a risk beyond that associated with standard practice." They strongly asserted that HIV trials conducted with placebos do not violate any human rights because treatment is practically unavailable in impoverished places like Africa. Since the American standard of care is simply not feasible in the developing world, placebo trials are useful to countries of the developing world when the studies apply region-specific knowledge to benefit the populations. At the very least, the short-course versus placebo trials provided a less expensive option that benefited children born to mothers who received ZDV and transmitted the virus at a lesser rate.

The proponents of placebo-controlled studies base their argument on several mutually exclusive assumptions. First the assumption that ZDV controlled trials would not be of use for poor countries is weak. If short-course ZDV were shown to be as effective as long-course ZDV, then these results would also be beneficial for countries that are unable to afford the long-course regimen. The second assumption is that anti-HIV drugs like ZDV are necessarily unavailable in sub-Saharan countries. The cost of ZDV dramatically decreased after the placebo-control trials were concluded. Today, because of efforts generated from the UN's Global Fund to Fight HIV/AIDS, TB, and Malaria, as well as the President's Emergency Plan for HIV/AIDS Relief (PEPFAR), ZDV and other more expensive and more effective drugs are widely available for PMTCT in many poor countries. While this could not have been easily predicted in 1994, pessimistic predictions are rarely useful in improving standards of care, and should not be used to justify providing less care.

In addition, the defenders of placebo-controlled trials failed to recognize the negative implications of conducting trials that would have been illegal in their home countries. Such practices increase the level of distrust between researchers and potential participants in poor countries, and make future cooperation more difficult. In sub-Saharan countries, conspiracy theories abound that assign the origin of HIV to a CIA plot to lower the population of Africa. Shifts in national policy can happen overnight in response to rumors that, for example, injectable contraceptives provided by Western nations are contaminated with HIV. Studies that seem to exploit economic differences are not conducive to improving an environment tainted with mistrust.

Finally, allowing placebo-controlled studies to continue creates the perverse incentive for research institutions and pharmaceutical countries to conduct their research in countries that may not benefit from the research. Clinical trials conducted in the United States are typically much more expensive than clinical trials conducted in countries that do not provide the same sort of regulatory oversight and participant protection offered in the US. Allowing institutions to reduce their research costs by outsourcing clinical trials to nations that cannot afford the drugs under examination is wrong. It places the research burden on nations already suffering disproportionately from lack of health care while delivering the benefits to nations with high health care resources.

Conclusions

To return to the PMTCT example introduced in the beginning of this article, the crucial ethical issue is not the choice of drugs, but the ability of the local government to influence that choice. If the local government chooses to use the less expensive medication, then American researchers should follow that choice out of respect for the priority set by the national government to provide care to their entire population. However, in the absence of strong governmental oversight, American researchers should follow American regulations and ethical codes, and therefore provide the more expensive and safer treatment. To provide the less expensive/more dangerous medication without local support and oversight would risk violating international codes of bioethics. The Declaration of Helsinki, an international code of bioethics updated by the World Health Organization member states, affirms: "In medical research involving human subjects, the wellbeing of the individual research subject must take precedence over all other interests."

Peter Lurie and Sidney Wolfe support this universal application of ethics when they state: "to claim that acceptable standards of care are shaped only by local conditions is to confuse optimal medical care with the quality of the local health care infrastructure." Clinical trials that use substandard treatments like placebos would not pass strict government guidelines in the United States. Thus, to apply only the local

standard of care creates incentives to recruit research subjects with the least access to health care instead of concentrating on the most vulnerable populations. Researchers must realize that human rights are universal and should not be compromised on the basis of poverty.

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Adrianna Anavitarte

Laying the Groundwork: Stanford and the Response to Global Health Needs

Mike Scahill, SMS II

We tend to hear the same statistics over and over – half the world's population lives on less than \$2.50 per day; AIDS kills three million people a year; malaria kills another million. We have heard them so many times that we may have to ask our lecturers, politely, not to open their talks by citing the seven children killed every minute by diarrheal diseases and respiratory infections. They are heart wrenching, unfathomable numbers that we already know all too well. That we have grown up hearing these sad truths of the world's health makes our generation unique.

"Globalization" became cliché long ago, but it is the reality in which we are learning medicine. The only world we have ever known is one where television ads ask us to adopt African children, where the World Health Organization's latest sobering report is at our fingertips, and where bird flu is just a jet ride away from New York.

We generally call our field "international health," a curious euphemism to be sure, because no one interested in international health talks much about Canada or Denmark. Saying "third world health" is passé, and not just because there is no more second world. "Developing world health" is better, but still vague and often inaccurate. What we really mean is "health for those impoverished by misfortunes of geography and sins of colonialism," but that is a bit too cumbersome for a buzzword.

Whatever the expression of choice, it is a burgeoning field for wannabe doctors for elusive reasons. The hours are terrible, the money is worse, and fame and adoration rarely trickles down from Paul Farmer. On the other hand, it is the perfect arena for medicine. Simple interventions – oral rehydration fluids, protein supplements, or basic antibiotics – are lifesaving. Systematic improvements can add years to an entire country's life expectancy. International health is a field where a young doctor can do truly great things for the world.

Student demand and enterprise have driven demand for international health programs at many schools. Harvard, Columbia, Alabama-Birmingham and our neighbor to the north, among others, have all forged major, long-term programs from the loose ties of their students and faculty. Granted, it

is no small feat to establish such a program. In general, the greatest need and the most exciting work is found farthest afield. At most medical schools, supply still lags far behind student demand for international opportunities.

Stanford still finds itself in this lagging majority, but the landscape is shifting. Until now, international work at the medical school has been driven almost exclusively by the particular interests of a few students and faculty.

For example, there are only five classes at our medical school that focus on issues in international health. Two are run by faculty with an extraordinary dedication to international health: Drs. Ralph Greco, Paul Wise, and Julie Parsonnet. The other three are lecture series established and organized by student groups: Access and Delivery of Essential Medicines, Physicians for Human Rights, and Physicians for Social Responsibility. Of course, with classes of eighty-some students, all these groups, under the umbrella of the students' Organization of International Health, tend to be run by the same small cadre of devoted medical students.

The Traveling Scholars program, wonderful as it can be, is another example of our shortcomings. For some students, the program is the stuff dreams are made of, as it will fund tuition and travel to support whatever research they want to do anywhere they would like to do it. The only trouble is that the program provides a huge incentive for students to pursue solo projects. Grants for collaborative efforts or long-term projects are cumbersome, subtly discouraged, and rarely awarded. At a school that recruits passionate leaders rather than loyal followers, the result is unsurprising – Traveling Scholars projects, though occasionally excellent, are almost always idiosyncratic. One student travels to a far-flung locale, does great research for a few weeks, and perhaps even publishes the results. But, with a big world out there and few students here, the international bonds of Traveling Scholars are mere flashes in the pan. Stanford scatters its medical students around the world every July, only to gather them back every August.

Underwhelming as this transient flux is, the situation promises to be the cusp of a great shift at Stanford. Rightfully proud of its long tradition in primary research and ba-



Ricky Tong

sic science, the School of Medicine and the University in general have begun to heed the calls for a greater investment in international work. For some years now, plans have been in the works for an international development center that would bring the diverse powers of the whole campus to bear on the planet's titanic health challenges. It is a wonderful concept with tremendous potential as the university's expertise in medicine, law, political science, business, education, and engineering, if properly directed, could bring tremendous good to the world's least fortunate and least healthy. It is not surprising, perhaps, that proper direction seems to be the limiting factor. The university has yet to find someone qualified to lead such a broad effort and willing to do so with the resources allocated so far. Though fairly resigned to the belief that they will never enjoy such an international health center, current students remain optimistic for the great work their successors may be able to do.

To their great credit, Dean Pizzo and his staff seem committed to the advancement of international health at Stanford. The administration gave its blessing to the brand new international health concentration and hopes to hire a Senior Associate Dean for Global Health. Roles for both remain loosely defined, but such flexibility may not be such a bad thing. Notably, in his November third newsletter, Dean Pizzo specifically mentioned the "incipient effort in global health" as a new initiative that would be supported despite the macroeconomic drag on the School of Medicine's revenues. As students, we appreciate the consideration he has given to drive and expand Stanford's standing in international health.

In this time of great change, we, as students passionate about advancing international health, have a grand vision for Stanford's future. It is fortunate, and perhaps not coincidental, that our first-year class has a level of interest and experience in international health that far outstrips any class in recent memory. We wholeheartedly support the administration's plans for the international development center as we could not agree more that a multidisciplinary approach is the only way to enact serious improvements in the planet's health. Indeed, we concede that, in the United States and abroad, economics will continue to drive changes in health much more than medicine.

Before this center becomes a reality, however, we must continue our grassroots efforts to ease and to drive its creation. To this end, we continue to encourage and to support students' work in international health, through Traveling Scholars or otherwise. We are seeking ways to address the ephemeral nature of such projects by encouraging, with the support of the new international health concentration, more continuity of projects. Our hope is to establish sites that receive a few students every year with an eye toward a long term partnership between Stanford and the foreign institute. One such collaboration, with the Independent University of Bangladesh, is already well on its way. We are also bullish

about the prospects of expanding the already wonderful program in Oaxaca, Mexico to include more community-based interventions and research.

Finally, we are looking to incentivize collaboration among Stanford's graduate programs. With the support of the School of Medicine and the Freedman Spogli Institute for International Studies, we hope to offer small grants to encourage projects that mix the talents of medical students with engineers or economics students with political scientists. The challenges facing developing countries go far beyond the realm of pills and stethoscopes.

Whether a blessing or a curse, we certainly live in interesting times for international health. Emerging disease, exponential population growth, "globalization," and increasing interest from major donors are all creating a whirlpool of activity and change. No one expects scourges that have plagued mankind for millennia, if not eons, to be stamped out overnight, but they certainly will not just decide to leave us alone on their own. Only the concerted efforts of many passionate, talented people can make a change – and we may be witnessing just that.



Keith Chan

The Future of Stanford Med Abroad: A Need for Community-Centered Approaches

Daniel Winetsky, SMS II

Though it is not yet official, the Stanford Medical School administration is hopeful that Dr. Michele Barry will be filling the new position of Director of Global Health. In this role, Dr. Barry would be responsible for coordinating and expanding international efforts at the medical school, as well as ensuring that these efforts conform to the highest ethical standards of institutional cooperation. This role would not be foreign to her: she is currently director of Yale University School of Medicine's Office of International Health, where she has taught courses in tropical medicine and public health, started special clinics for refugees and international travelers, and set up an international health elective for internal medicine residents. Her research has focused on the ethical conduct of research performed in the developing world by multi-national corporations in the pharmaceutical and tobacco industries. She is also a past president of the American Society for Tropical Medicine and Hygiene and has been a consultant for the Ford Foundation on programs around the world.

The potential hiring of Michele Barry is an exciting step toward a new era of global health at Stanford. She would be a welcome addition to the faculty here, and, given the enormous thirst for international health opportunities among each incoming class of medical students, it is clear the student body would be grateful for the enormous talent and experience she could bring. In anticipation of her possible arrival at Stanford Medical School, it is worth taking a moment to point out some of the most promising avenues for a global health initiative to take, as well as some of the pitfalls to avoid. Open public dialog within the medical school community regarding the form the global health program should take can only help ensure this program appropriately matches the needs and expectations of the student body.

For young people now entering medical schools across the country, global inequality in health status stands out as one of the defining issues of our time. We are the first generation to grow up with the global AIDS pandemic. Many of us have read inspiring accounts of the ground-breaking work of Paul Farmer and others to put a meaningful dent in that disparity; we have watched as Bill Gates' philanthropy has made this work possible on an unprecedented scale. Some of us may even have tasted international health work in our lives before Stanford and came here in search of the skills needed to continue to lead efforts in the field.

Stanford students' energy and enthusiasm must be captured and fostered in settings that allow them to practice clinical skills as well as research skills abroad. While the craft of research is important for future leaders in global health, students come to Stanford Medical School first and foremost to become physicians. Clinical opportunities should be a central component of the medical school's expanded international efforts,



Mike Sundberg

alongside opportunities to participate in research. Exposure to community-based approaches to health improvement would also help to build leadership skills among students and help them to think about innovative ways to approach the health of their patients. This should involve partnering with local organizations in order to take advantage of both the wealth of local knowledge embedded within community social networks and the innovative strategies developed in the face of limited resources.

The international health initiative should also be multidisciplinary in a way that other health improvement efforts may not need to be – as reaching across cultural, linguistic and economic frontiers often presents challenges best understood through a non-medical lens. Therefore, reaching out to other schools and departments should be a priority for the global health initiative. There are many exciting new paradigms in the field of international development relevant to health: microfinance, human rights, sustainable engineering. Of course, it is essential that the medical school avoids overreaching the scope and vision of its mission, but projects that reach out to other corners of the campus are both feasible and ripe with potential for currying the kind of leadership in line with the mission of SMS. The law school's International Human

Rights Clinic, under the impressive stewardship of Barbara Olshansky, is one example of a potential partner for the medical school's international endeavors.

In any effort to improve health in the developing world on the part of an institution from a developed country, there inevitably lies some degree of tension between the priorities of the institution and the priorities of the community whose health is the focus of action. This tension may be explicit, but often it goes unsaid. The latter case can lead to a buildup of unexpressed frustrations within a community that threatens the long-term sustainability of a project or partnership. A necessary first step to avoiding this kind of mistake is to take very clear stock of the priorities operating within an institution. Stanford Medical School should take pride in its reputation for cutting edge research and the use of new technologies to provide high quality care to its patients. This reputation is no accident. Ours is an institution which masterfully combines a drive for scholarship with flexibility in how it is produced. We should bear in mind that we will bring these qualities with us as we scale up our activities abroad.

We should, however, be cautious not to let this drive for new knowledge come in conflict with our commitment to serve the communities supporting our efforts. Community Based Participatory Research is a paradigm of public health research developed recently for just this purpose. It requires of a research institution a meaningful investment in the community – not just of financial resources – but of time taken to build partnerships, to involve the community partners in every stage of the project, and to teach both students and

members of the community. A longitudinal project working within this framework would be an important element for a sustainable global health initiative at Stanford. This summer, medical students (myself included) participating in the Community Health in Oaxaca program created a preliminary research agenda for working with community organizations in Oaxaca, Mexico along these lines. Under the guidance of Ann Banchoff from the Office of Community Health and Dr. Gabriel Garcia, we made contact with local organizations that are using innovative strategies to improve health within a number of communities in Oaxaca, Mexico. These organizations could be excellent starting points for the initiative as it gets off the ground.

If Dr. Barry joins the faculty here at Stanford, one of her first tasks would be to combine her expertise and vision for global health with the unique strengths and challenges of Stanford's existing international programs. The incredible enthusiasm of the student body for issues in global health is one strength that will not be hard for her to tap into. Enhanced overseas clinical opportunities for students and residents will be an easy win. Stanford's renown for cutting edge research presents opportunities for a new level of leadership in international cooperation. However, to reach this new level, we must not only take advantage of the great minds gathered at Stanford University School of Medicine, but also reach out to other Stanford schools and departments, and, most importantly, tap into the enormous human capital contained within the communities with which we form partnerships.



Mike Sundberg

International HIV Prevention: The President's Emergency Plan for AIDS Relief

Ryan Schubert, SMS I

When President George W. Bush gave his state of the union address in January of 2003, few people predicted he would speak about international health policy. The US was obsessed with security in the wake of 9/11 and the idea that Mr. Bush would speak about health policy seemed far-fetched at best. The American public was focused on a war in Afghanistan, and another potential conflict with Iraq was on the horizon. Many Americans were thus surprised when in his speech the President called for the US to commit 15 billion dollars over five years to deal with the international AIDS epidemic. When the President's Emergency Plan for AIDS Relief (PEPFAR) was authorized by Congress in 2004, it represented a major shift in US international aid policy. Four years after PEPFAR's authorization and one year after its re-authorization in 2007, the program has been successful in some aspects, but highly controversial in others.

Political support for PEPFAR has steadily increased over the past 20 years. The issue had already gained rhetorical prominence under the Clinton administration and the public mirrored this as soccer moms, church folk, rock stars, activists, and even lay persons all began to speak out, seemingly with one voice. Their voice, however, would later splinter over the specifics of how aid should be distributed. This set the stage for Mr. Bush's 2003 speech. The 15 billion dollar promise included five billion for existing programs; one billion for the UN's Global Fund (distributed in amounts of 200 million per year) to fight AIDS, TB, and malaria; and nine billion for new programs in 14 target countries stretching from Africa to the Caribbean. Noteworthy details included specific numeric targets for prevention, treatment, and care; addressing HIV transmission based on the ABC program of Abstinence, Be faithful, and use a Condom; and granting

"I FEEL THAT AMENDING THE 2003 ACT THAT REQUIRES THAT 33 PERCENT OF PEPFAR PREVENTION FUNDS BE SPENT ON ABSTINENCE AND FIDELITY PROGRAMS WOULD BE A BAD MOVE, REMOVING THIS EARMARK WOULD REMOVE THE ESSENTIAL PRIMARY PREVENTION FOUNDATION FROM THE US RESPONSE TO THE AIDS PANDEMIC."

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funding for treatment, a previous sticking point.

When Congress agreed to pass PEPFAR in May of 2003, the House had added three key amendments to the bill. First, at least a third of all prevention funding had to be spent on promoting sexual abstinence. Second, faith-based groups in Africa that would be receiving PEPFAR funds would be allowed to refuse medically recommended strategies, particularly condom distribution, if they considered them morally objectionable. Third, the law authorized, but did not require, one billion dollars per year for the UN Global Fund. These amendments were highly controversial, with many critics citing the need for evidence-based approaches to prevention that invariably promoted the usage of condoms. When PEPFAR was reauthorized by Congress in 2007, funding for the program was increased substantially to 48 billion dollars over five years. The new bill stipulated that any country spending less than 50% of its prevention funding on abstinence-only programs must justify this with a report written to Congress. Abstinence-only programs have been attempted in the US with Title V Section 510 funding for public school sexual education programs, but to date no study has shown the programs to be successful.

Most public health officials believe that all three components of the ABC strategy are vital to reducing HIV incidence in any country. The CDC's website states that "latex condoms, when used consistently and correctly, are highly effective in preventing heterosexual sexual transmission of HIV" (cdc.gov/hiv). The US policy's privileging of A and B over C is thus highly controversial among experts and medical professionals. Additionally, all PEPFAR programs that discuss condom use must also discuss abstinence, but those discussing abstinence are not required to discuss condom use. As a result, of the 60 million people whom PEPFAR has reached, 40 million were in programs promoting only

"THOUGH A (ABSTINENCE) AND B (BE FAITHFUL) PROGRAMMING ARE BOTH IMPORTANT IN CERTAIN SETTINGS FOR SPECIFIC POPULATIONS, AS WE'VE SAID BEFORE, AN INTEGRATED APPROACH THAT BALANCES ALL THREE ELEMENTS AND ADDRESSES THE COMPLICATED REALITIES OF INDIVIDUALS LIVING IN RESOURCE-POOR COUNTRIES IS STRONGLY PREFERABLE TO AN ARBITRARY FORMULA WITH NO BASIS IN PUBLIC HEALTH EVIDENCE OR PRACTICE."

HELEN GALE
CEO, CARE USA

abstinence and being faithful. Supporters of the US position argue that abstinence is the only way to prevent infection, and point to Uganda as an example of the success of their strategy. Critics, however, point out that Uganda created and implemented an ABC strategy, not an AB strategy. They also contend that the available evidence suggests abstinence-only programs have a higher rate of failure in terms of infection and adverse outcomes compared to programs that include condom promotion. A review of the available literature by the Center for Health and Gender Equity, a US-based NGO, validated the critics' position.

Another controversial topic involves condom distribution. While PEPFAR has increased funding for condom distribution and the number of condoms distributed per year, it only targets high-risk populations such as commercial sex workers, couples with one infected partner, men who have sex with men, substance abusers, and mobile males. Sites for condom distribution are strategically placed in these high-risk areas and send a clear and stigmatizing message that condom use is associated with immorality and danger. Furthermore, specific rules in PEPFAR prevent discussing condom usage with children in school under the age of 14, prevent distributing condoms in a school setting, and prevent recommending condoms in any way as a primary preventative strategy for young adults.

Targeting only high risk populations for condom usage has a few impacts on the health of the country's population. First, target countries are reporting that condom users are stigmatized as irresponsible. Many countries have long prevented open discussions on sex, and policies that encourage negative views about those attempting to protect themselves from infection run the risk of increasing risky sexual practices and thus infection rates. Second, countries with HIV incidences as high as 20-30 percent have not been deemed "high-risk." The implication that people living in a country with an incidence as high as 30% are not at high risk for infection is questionable and reveals the arbitrariness of the high-risk strategy.

Another major point of debate among policymakers has

been over the role of faith-based organizations in HIV prevention. Congressional reports reveal that in 2006, 23% of all PEPFAR fund recipients were faith-based organizations. The Bush administration argued that these organizations were the only ones providing aid in rural areas and were thus necessary. They also articulated their belief that these groups should not be discriminated against simply because of their faith-based status. Critics argue that reverse discrimination has been taking place, with faith-based groups being privileged over secular ones. They cite the AB funding earmark as one example of this reverse discrimination. Since prevention strategies are not required to discuss condom usage, there have been several cases of faith-based groups with little experience in either AIDS policy or Africa receiving funding simply because they have policies promoting only A and B. A noteworthy example occurred when an expert

review committee for PEPFAR recommended the rejection of a fall 2004 grant to the Children's AIDS Fund, a Washington-based group promoting abstinence-only education, because members of the committee felt that it was not suitable for funding. Despite the recommendation, the chief of PEPFAR, Mark R. Dybul, approved the project.



Lisa Mastronardi

PEPFAR's decisions on abstinence, condoms, and faith-based organizations have been highly controversial. Their impact is hard to measure, but the program's prevention efforts are in jeopardy of failing if policies are shaped by ideological rather than evidence-based approaches. There is no doubt that people in countries with high HIV infection rates must reduce their level of sexual activity if they wish to reduce the number of infections. Likewise, people who either do not or cannot wait until marriage, for whatever reason, must have condoms to use. The government's earmarking of funds for A and B over C should be done away with so that recipients of PEPFAR funds can tailor prevention strategies to individual countries in order to maximize their effectiveness. Public health officials, not members of congress, should be the ones deciding what methods are the most effective.

Traveling Scholars—Minus the “Traveling”

Elise Min, SMS II

I embarked on a journey to India this past summer hoping to reignite my once-held passion for international health, and to paint for myself a new picture of the meaning of international health research. Based on an experience I had several years ago in Uganda as an undergraduate researcher, I had come to see international health research as a *mélange* of numerous roadblocks, an area of medicine with a lack of mentorship, and a field where my hard work could only accomplish a final product of mediocrity.

Yet, I didn't want to settle with disappointment. So, I found myself jetting abroad again – this time to Hyderabad, India, to conduct research on prehospital care for women in Andhra Pradesh, a state located in the southeast part of the country. Having had experience with international health before, I now carried with me a little extra baggage; the contents of it including professional clothing, a laptop, and the disbelief as to how I always manage to put myself into the uncomfortable position that occurs when conducting research with unfamiliar populations.

The group I was working with, called the Emergency Management and Research Institute (EMRI), had imple-

mented a remarkable state-wide, prehospital (ambulatory) care program, with services offered free-of-charge to all 80 million residents in Andhra Pradesh. Impressively, the government of India is now funding a majority of the project. Yet, no matter how many conversations I had with my advisors or how many times I visited the EMRI website to prepare myself for my work abroad, I still didn't know what to expect at all. I held onto the exciting thought that my research was going to be the first research looking at prehospital care and obstetric emergencies in India, and it more or less relieved my anxiety on the trip over.

The first week working at EMRI was quite agonizing, as many who've conducted research in partnership with foreign organizations can attest to. Most difficult, I think, was coming to the realization that my previously proposed methods for conducting the research were not going to be feasible. Prior to my departure, my Traveling Scholars proposal had a seemingly smooth methodology – it was almost too good to be true. However, what is planned prior to departure is frequently a naïve estimation of the reality that ensues when working in the field:

Roadblock #1: Runsheets, which were filled out by an EMT after every ambulatory run, and were the main source of my data, turned out to rarely be completed in full. A lot of the sections that I needed for my research project weren't filled out, such as prior medical conditions or prior pregnancy history. So, we planned to compensate by asking for those particular data during a 48- to 72- hour follow-up interview.

Roadblock #2: From a trial 48- to 72-hour follow-up data collection, I was surprised to find that more than half of the respondents were neighbors or distant relatives of the women who had used the ambulances, instead of an immediate family member or the patients themselves. It didn't take long to realize that the people we were interviewing really had no idea whether the research subject had had miscarriages in the past or had pre-existing hypertension.

The problem was clear. There was no reliable source from which we could get the patient's medical history or pregnancy history, and without validity, the data were not worth analyzing. To address the issue, in a span of a few days, we decided that the only feasible way to get reliable data was to ask the patient during her transport to the hospital – because once she had been transported to a hospital, we could no longer get in touch with her. And, changing our collection from “retrospective” to “real-time” translated into more human resources,



Elise Min

more organization, and fewer hours of sleep.

The data collection took place over 12 days, with pregnancy-related calls sampled at every two-hour interval of each 24-hour day. We used a standardized questionnaire and collected data by phone interview with the EMT who was transporting the pregnant patient to a nearby care facility. We were able to obtain all the data that were needed and those that would have otherwise been impossible to get from a retrospective study based on incomplete runsheets. As for the hours I wasn't



Phuong Nguyen

at the Call Center for the real-time data collection, I was sitting with other research assistants and making sure that the 48- to 72-hour follow-up calls were going smoothly, entering information into our database, or desperately trying to catch a few hours of sleep. With persistent dialing and calling at different times of the day, a 50 percent follow-up rate from trial data collection changed to an 85 percent rate for the actual data collection.

Over the 24-hour sampling period, EMRI ambulances responded to 719 pregnancy-related calls, accounting for 18 percent of all emergency medical calls received. Ninety-eight percent of the patients were in their third trimester, and 19 percent of the obstetric emergency calls were complicated. The most frequent complications were premature birth, hypertension, ambulance delivery, and hemorrhage. At the 48- to 72-hour follow up, 86 percent of pregnant women had delivered and five percent of newborns had died. Newborn mortality was significantly correlated with the number of pregnancy-related complications ($p < 0.05$). Only one maternal death was identified by the 48- to 72-hour follow-up call and a 42-day follow-up call ($n=700$ and $n=492$, respectively). Also, there was no difference in the number of complications, maternal mortality, or newborn mortality between urban versus rural/tribal groups (T-test, $p > 0.05$). From the study sample, the maternal mortality ratio (MMR) for women receiving pre-hospital care was 204 from my data compared to an adjusted MMR for India of 450 – suggesting that prehospital care may contribute to a lower mortality ratio.

Given the epidemiological nature of my research, my experience in India did not have direct patient encounters and the typical “life stories” that people like to share after visiting a developing country. And contrary to my initial hopes,

I ended up not having enough time to travel and discover the beauty of the country itself. However, I still feel that it was an immense privilege to conduct a project that involved coming up with a research question, leading its implementation in the field, improvising as obstacles popped up, training and managing a group of research assistants, and analyzing the data that were obtained in the first study describing the epidemiology of prehospital obstetric emergencies in India. Looking back, the bucket showers and the crazy night taxi rides to the EMRI facility at two in the morning were well worth it. At certain points during my stay, I felt that I was part of a training program learning to lead and motivate a group of people. And throughout much of the time, I felt a desperation to balance being culturally appropriate while simultaneously being aggressive enough to get the research done. My mentor told me at one point that, at the end of the day, gratification comes in retrospect. I now agree.

Above all, I look back on my experience and see that I met some of the most wonderful and inspiring people from both Stanford and a place I would not have otherwise had the time to visit as a medical student. Meeting like-minded people encourages one in the pursuit of one's passion, as many of us in medicine are driven to help and better the world in capacities we would otherwise not have been able to do as individuals. As trite as the expression “wanting to help” sounds to many of us who've written a personal statement for medical school applications, perhaps it is that naïve, idealistic desire that helps give us the energy boost needed before the next big hurdle, which I imagine awaits all of us in whichever niche of medicine we find ourselves.

Achieving the Impossible: Global Eradication of Smallpox

Ron Alfa, SMS II

William Foege, a leading figure in smallpox eradication, recognized an important challenge in his commentary about the eradication efforts: uncertainty. By all accounts, the global eradication campaign was by no means a well-orchestrated effort. It might rather be thought of as an idealistic dream that was held and promulgated by many international visionaries. It is only through good fortune on one hand, and an excessive amount of brute force determination on another, that the global eradication of smallpox could be certified by the World Health Organization (WHO) in 1979.

The USSR Deputy Minister of Health first put smallpox eradication on the agenda at the Eleventh World Health Assembly of 1958. Member nations supported the proposal but it was, nevertheless, just another poorly funded resolution among many that might never be implemented. The WHO envisioned that eradication would be implemented by the individual countries concerned but had neither secured nor allocated the resources to support these efforts. In truth, few individuals in the medical and scientific community believed that smallpox eradication could be achieved in hindsight of failed Yellow Fever and Malaria campaigns. Eradication was not a priority.

Fred Soper, director of the Pan American Sanitary Bureau, or PASB (later Pan American Health Organization – PAHO), brought the first major milestone for global efforts by effectively orchestrating an eradication campaign throughout much of Latin America. Even before the Eleventh World Health Assembly, Soper and the PASB had prioritized the local production of vaccines and mass vaccination campaigns in endemic regions. By 1960, the PASB, together with national health programs, had successfully eliminated smallpox from all endemic regions of Latin America except Brazil.

Brazil too had been undertaking vaccination programs through its national health institution, the Fundação Serviços Especialis de Saúde Pública (FSESP), but coverage had not penetrated all states. In 1965, under the auspices of the WHO, the Brazilian government signed an agreement with PAHO enacting an official Campaign for the Eradication of Variola (CEV). The CEV would receive dedicated funding from the Brazilian government and technical assistance in the form of vehicles, equipment, and vaccine production from PAHO. This effectively placed smallpox eradication as a top priority and secured funds from the Ministry of Health to pursue a comprehensive vaccination program. Logistically, however, the task remained daunting. Only a few teams of vaccinators for each state were faced with the task of vaccinating millions of Brazilians, even with increased resources. Claudio do Amaral, then Chief of the CEV, took on the challenge by organizing mass vaccination gatherings in major

city centers, events that took on extraordinary proportions. The events were more than just public health initiatives, they were immense gatherings where it was not uncommon to find live music and cultural festivities. A single team comprised of just a few vaccinators could vaccinate thousands of people within a single day. Throughout the campaign, the WHO attempted to dictate top-down directives on the CEV, but Brazilian public health officers remained on their course toward mass vaccination. The last case of smallpox in Brazil was in 1971.

In 1966, the WHO embarked on an intensified campaign to eradicate smallpox. For the first time, tangible resources and manpower were deployed to South Asia and Central & Western Africa. While many authorities still perceived eradication to be a naïve goal, Brazil's success lent hope to workers on the ground.

The African campaign involved a 20-country region of West and Central Africa stretching from Mauritania to the



Nicolas Grundmann
H&P Winter 2009

“IN RETROSPECT IT SEEMS CLEAR - WE DIDN'T KNOW HOW TO ERADICATE SMALLPOX WHEN WE STARTED... WE ARE ALWAYS FACED WITH MAKING SUFFICIENT DECISIONS BASED ON INSUFFICIENT INFORMATION.”

WILLIAM H. FOEGE

Congo (Zaire) River. The region is larger than the contiguous states of the US and has a population of 120 million people. Unlike the CEV, the African campaign could not rely upon a single unified health infrastructure. Though some regions did have local resources, these were diverse, making a systematic strategy even more difficult. The US Centers for Disease Control deployed about 40 officers to assist in the campaign, while the local ministries of health and regional health missionaries contributed additional manpower. Workers in each region developed strategies for vaccination campaigns with some utilizing mass vaccination and others employing containment strategies developed by William Foege over the course of the campaign. Ciro de Quadros, a vaccinator on the ground during the campaign, emphasized the myriad of obstacles encountered in Africa. Each country exhibited a unique political situation. In some regions vaccinators formed alliances with local militias in order to safely carry out their work while in others, delicate negotiations with shamans and tribal leaders were required for access to only a few people. Supplies and equipment from the WHO were sparse and unreliable; de Quadros recalled having to complete several weeks' worth of paperwork with WHO officials via Telex only to wait several more weeks for a replacement truck. It was not uncommon for trucks to be immobilized by the terrain or stolen by militants, yet they were often the most difficult resource to procure. It is a testament to the diligence of the African and international workers that the continent experienced its last case in May of 1970.

The South Asian campaign, India in particular, is perhaps the best described historically and well illustrates the complexity superimposed by local politics on eradication efforts. The WHO identified India as a major reservoir of the disease since the first discussions. Yet, the Indian government perceived the negative international attention as stigmatizing, especially as India was moving towards modernization. For the WHO, opening a productive dialogue with the central government represented only a first step; early on, state-level politicians retained significant autonomy over healthcare. This introduced significant institutional disunity, especially since the WHO was intent on imposing a standardized vertical eradication scheme. Nonetheless, under pressure from the Indian central government, the WHO began to explore regionally relevant policies. An immense public health campaign of this magnitude was no trivial matter in a nation with the size, population density, and cultural diversity of India. The Indian government placed tremendous pressure on the WHO, even threatening to end the campaign to ensure resources were more forthcoming than in Africa. Even as the campaign was underway, Donald Henderson, director of the program in Geneva, faced constant challenges as he attempted to reconcile persistent diplomatic conflicts between regional, national and international players. Nevertheless, the campaign was a success. Smallpox was eradicated from India and South Asia. In India, as in other regions, the success of the program hinged upon a dynamic interplay of local and international individuals.

It is difficult to recount such a tremendous effort in so few words. I have attempted to present a sampling of just a few stories while recognizing some of the major players who made smallpox eradication a reality. The success of the smallpox eradication campaign can be attributed in major part to the optimism and resilience of every individual involved. Visionaries from the offices of the WHO in Geneva, to the vaccinators on the streets of New Delhi believed that smallpox could be eradicated, and they held their ground in the face of political, economic, and cultural pressure to ensure their dream became a reality.

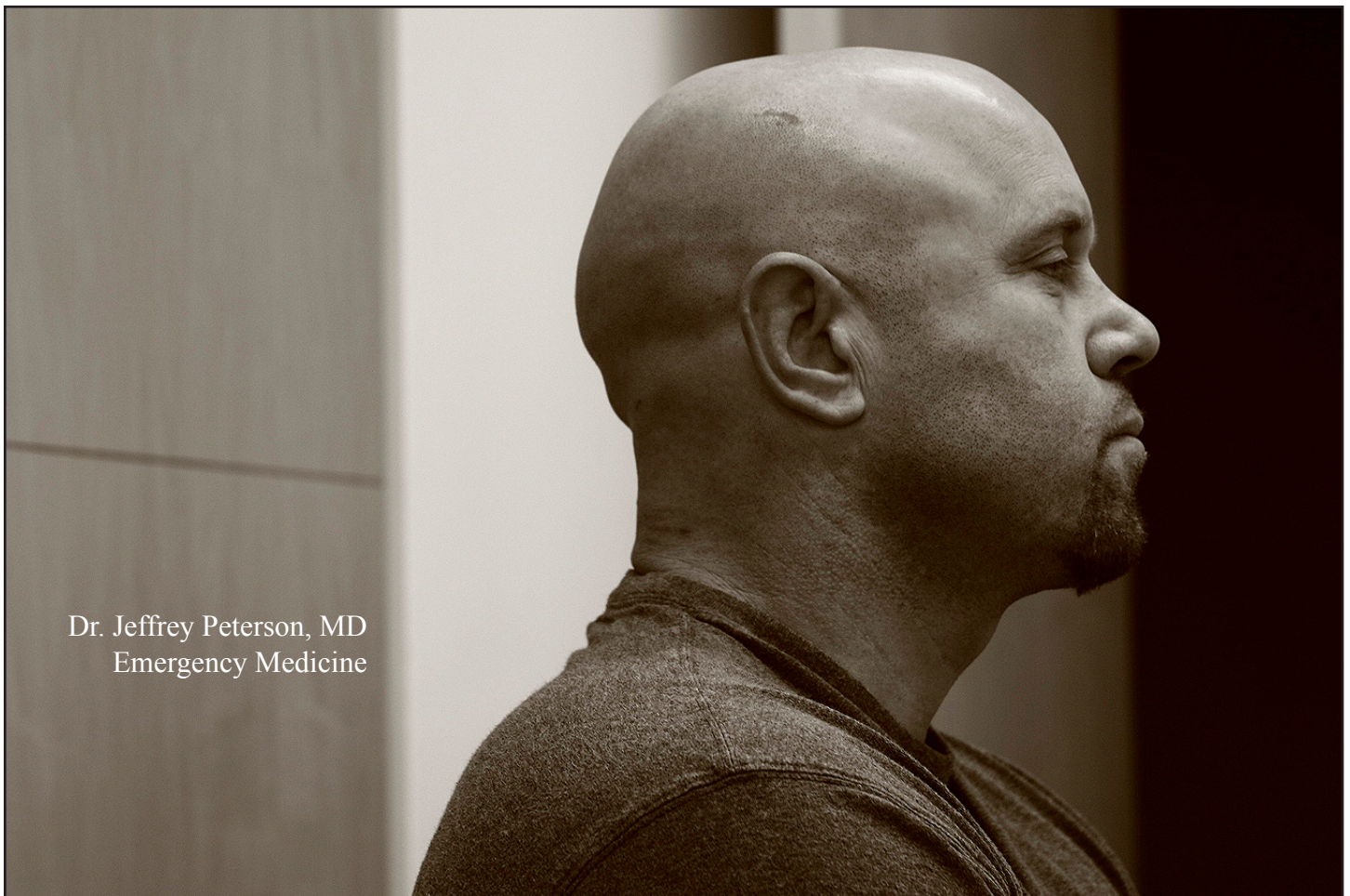


Eric Leroux

Physicians Abroad: A Photoessay

Stesha Doku, SMS I

Across the Stanford Healthcare System, there are a number of health care professionals who have made it their mission to provide health care both domestically and internationally. The countries they travel to vary in terrain and cultures. Their specialties span across all fields, from the basic daily health needs to life changing surgeries. While some focus on lending hands in established medical facilities, others choose to help influence health on the policy level. Whichever method they choose, they hope to inspire others to serve as advocates for essential health care both locally and globally.



Dr. Jeffrey Peterson, MD
Emergency Medicine

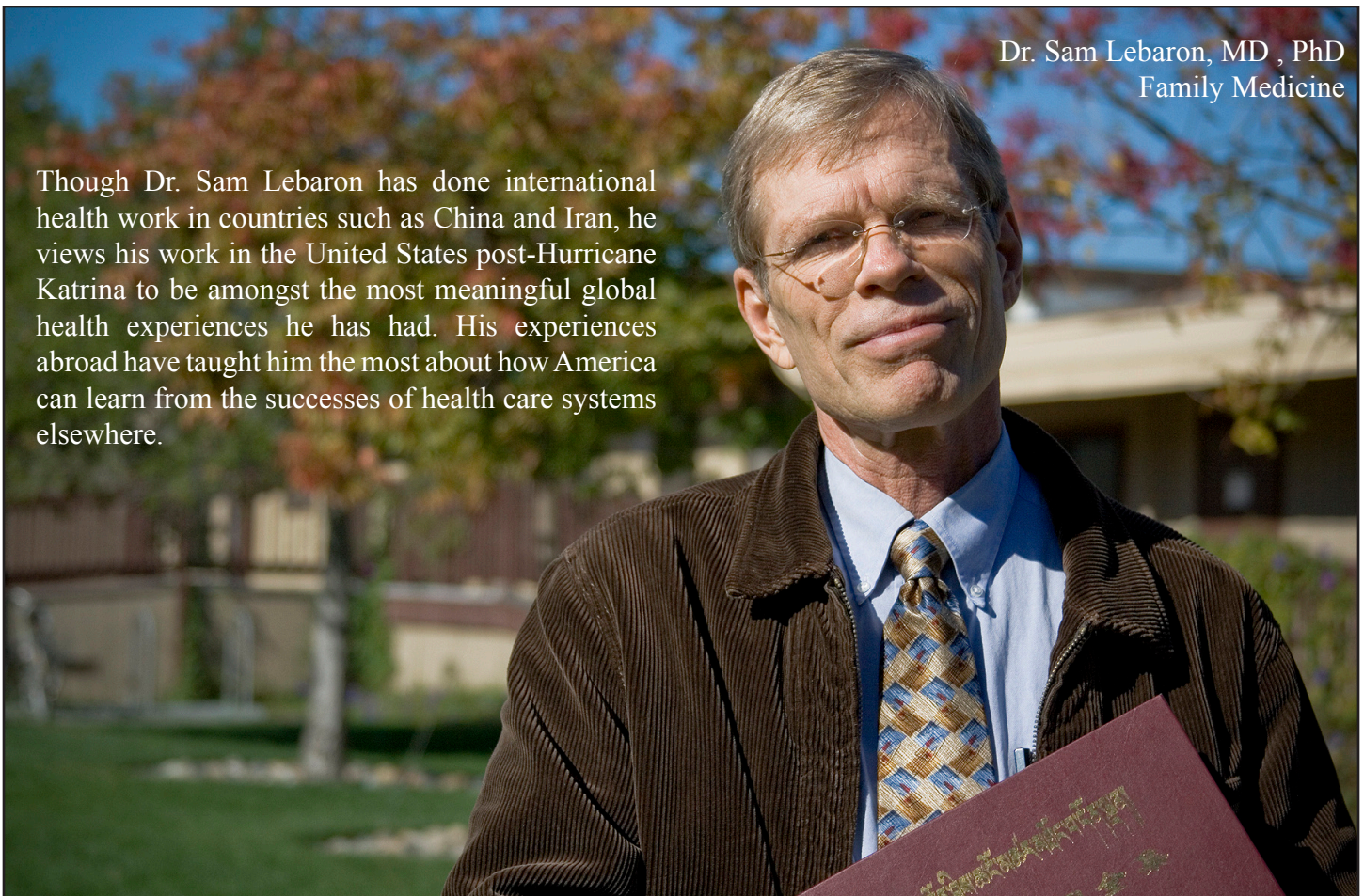
What you may not know about Stanford Emergency Medicine doctor Jeff Peterson is how his passion for global health has been shaped by his time in Africa. In 2006, Peterson served as the doctor for three marathoners running across the entire Sahara. Changed by witnessing the depths of poverty and disease in the area, Dr. Peterson helped found the organization Sahara Relief, which focuses on bringing basic healthcare to women and children in the area.

Photos by Stesha Doku



Dr. Sherry Wren, MD
Surgery

Dr. Sherry Wren's involvement with Doctors Without Borders has given her an outlet to pursue health on a global scale in civil war-torn countries such as Côte d'Ivoire.



Dr. Sam Lebaron, MD , PhD
Family Medicine

Though Dr. Sam Lebaron has done international health work in countries such as China and Iran, he views his work in the United States post-Hurricane Katrina to be amongst the most meaningful global health experiences he has had. His experiences abroad have taught him the most about how America can learn from the successes of health care systems elsewhere.

Anne Fadiman: Exploring the Interactions of Culture, Character, & Medicine

Blake Charlton, SMS II

Anne Fadiman's *The Spirit Catches You and You Fall Down* is one of those rare, treasured books that is vital to the education of a profession. Even before entering medical school, a friend gave me a copy of the book and the advice that, "We all read this during our training." I was skeptical. Everyone? My friend shrugged. "If you don't, everyone will talk to you about it or teach you about it until you finally do read it." After perusing a few chapters, it wasn't hard to see why. By examining the case of a young epileptic girl in the Hmong population of Merced, California, Fadiman leads her readers into the complex cultures of both the Hmong and modern medicine. More importantly, Fadiman shows us what tragedies result when these cultures collide. In 1997, *The Spirit Catches You* won the National Book Critics Circle Award.

Mrs. Fadiman has also served as the founding editor of the Library of Congress magazine *Civilization* and the Phi Beta Kappa quarterly *The American Scholar*. She has also written two books of essays, *Ex Libris: Confessions of a Common Reader* and *At Large and at Small: Familiar Essays*. Presently she holds the Paul E. Francis chair of nonfiction writing at Yale University.

Last Spring, Stanford Medical School was fortunate enough to have Mrs. Fadiman speak at the annual Medicine and the Muse symposium. I sat down with Mrs. Fadiman to discuss the intersection of writing, medicine, and culture, and what it might mean to training and practicing physicians.

It seems that your position between Hmong and medical culture allowed you to see both with extraordinary clarity. Did you have any experiences that would help those of us in medicine to examine ourselves?

The subtext of that question is that medical professionals are firmly in one culture. They have the advantage of knowing at least one culture well but the disadvantage of coming across cultural interactions with more baggage than I did. I wasn't a member of either culture.

I knew nothing about the Hmong and far less about medicine than I thought I did, which was both a curse and a blessing. The curse was that I often didn't understand what was happening, medically or culturally. But I was blessed to be free of any preconceptions. From that point of view, I would say to physicians that Arthur Kleinman's "Eight Questions" are a seemingly obvious set of inquiries, but ones that give patients ownership of their illness and allows doctors to admit ignorance. When these questions are asked, you can almost hear a creaking as the center of the world shifts away from the doctor. Essentially, the doctor is expressing interest in the patient's perception of illness, which then paradoxically makes it much more likely that the patient will respect and listen to the doctor's advice. There's a greater sense of collaboration rather than compliance. I think some doctors are afraid they will lose a position of power and if they listen to the patient it will make what they have to offer less valuable.

That is a fascinating point that doctors place themselves within one culture and one culture only. Would it be helpful if physicians viewed themselves as existing in several cultures simultaneously?

Yes, or at least understanding that they do belong to a definite culture, rather than in some default, culture-free mode. When I was first working on this book, the notion of "medical culture" didn't exist. Now, fortunately it does. I would say to any physician that when entering any cross-cultural interaction, it's best to try to wipe your slate as clean as possible. You have learned so much in medical school, but forget it for the moment when meeting a patient. Concentrate on body language. One thing that might make the biggest change is reinstating house calls. The issue of turf is tremendously important, and people from other cultures are much more likely to feel intimidated in a hospital; it's a frightening environment. Whereas, if the doctor came to a patient's home and the patient was able to offer the doctor a Coca-Cola, and the doctor were able to see the patients children and community, that would give the physician a sense of context.

To take a step back, I wonder how you set about

writing about such a large and diffuse concept as culture. How did you first come to understand the cultures you were writing about?

For me, the trick is to examine in as myopic a way as possible. I want the center of my narratives to be viewed through a microscope rather than a telescope. In other words, I was able to stay interested in this subject for eight years because I picked one case, one family, one pair of doctors. I got to know each of them very, very well, and I cared for them. It was my caring for those individuals that enabled me – in every other chapter – to use a telescope and examine Hmong history and medical culture. I could never have written a book that was solely the telescope chapters. I think that, from a literary point of view, that is what patient-based medicine is: it means that the physician must think beyond medical knowledge to focus on and care about an individual patient. I think caring about a patient is what gets a certain kind of doctor through the very long nights and terrible frustrations. If you don't really care for your patient, you are performing the medical equivalent of writing a telescope chapter, which is great for a researcher but is hazardous for those who have chosen the clinical path.



Yale University: www.yale.edu/english

So would you say that character is the foundation to writing about culture?

Absolutely, but when you say “character,” I take that to mean more than simply how I present them. I'm interested in more than simply describing the character of my characters. Rather, I'm interested in people, individual people. The time I spent with those individuals, and how much I cared about them, made my interest so intense that I was able to spend years in libraries and so on to try to understand why they acted the way they did.

Is there anything that makes writing about medicine and medical culture in particular difficult?

It's too easy to fall into the common trap of complaining about modern medicine being overly technical. It's too easy to blame doctors for turning into chilly robots who know more about machines and less about people...or to blame HMOs or the ten minute patient interview or

capitation and so forth. I don't like any of those things either, but I think there is a grave danger in romanticizing whatever the alternative might be and forgetting the unbelievable riches that medicine has to offer because of the technical things that we complain about. People often ask me if I think the Hmong shaman had more to offer the Lees than their doctors did. Some even wonder if the shaman might have more to offer all of us because of the sophisticated herbal remedies and so on. I think Hmong shamans do have a great deal to offer, but not as much as modern medicine. That is, if I were sick or if my children were sick, I would go to a physician. That is why I think romanticizing the alternatives to mod-

ern medicine is especially dangerous for those who write about and criticize medicine.

One of the wonderful things about *The Spirit Catches You* was how it illustrated the way your thinking about medicine and culture changes over the eight years that you wrote it. I wonder if your thinking about the subject has continued to evolve even after publication.

It has. Toward the end of the book, I did provide some thoughts about ways medicine might change. On the whole, the book provided a much better overview of the problems than the solutions. And since writing the book, I have noted a huge change in medical culture. It's difficult to say what caused the changes. There were classes and lectures on cross-cultural medicine and cultural competence. Then there was the rise of humanities in medicine, which I think is based on the “whole patient, whole doctor” model. And of course medical schools began to require courses on the patient-physician relationship. In fact, I audited one such class at Stanford the very first year it was offered. Around the same time, Harvard started a course called “Patient-Doctor I” rather than “Doctor-Patient I.” All of those things were happening at the same time, and I think that they really meant something. That doesn't mean that everything is perfect now, or anywhere close. Unfortunately, one of the reasons all of these movements started was that there was more to worry about back then and more to fight against. There was more power in medical culture that was moving in the other direction. We still have problems with cultural insensitivity. I don't think that the right way of thinking has taken over, but rather that the trend is incredibly encouraging.

One Day... Someday... in Oaxaca: A Student's Reflection on the Experience of Living in the Culture Capital of Mexico

Julia Rasooly, MS Medicine II

It is seven o'clock on a Thursday morning in Oaxaca, Mexico (also known as "la cuna de la cultura," or the seat of Mexican culture). I am eating breakfast that my host mom, Cecilia, graciously prepared for me the night before. I rush to the bus stop to catch a ride to Centro de Salud Volcanes, a clinic that is 25 minutes away. At the clinic, Dr. Juarez greets me with a big smile, makes me my favorite cappuccino, and we call in the first patient from our list.

On one such morning, I took a history and did a physical exam on eight patients, including a 12-year-old girl named Isabel, who was plagued by giardiasis, a water-borne disease. After work that day, I met the founders of Niño-a-Niño, a non-profit organization dedicated to enhancing the health and development of underprivileged children in Oaxaca, their families, and the society at large. At their office, I talked to some of the children involved in their carpentry projects – making and selling household furniture for a profit. Not only were these underprivileged children able to express and apply new ideas for creative projects, they were in a nurturing community for learning these skills. I was so inspired by this amazing organization that I decided I wanted to be involved.



Julia Rasooly (pictured, center)

A week later I went with Javier, a Niño-a-Niño founder, to a rural town two hours away from the city, to study some of the organization's green technology projects such as cisterns for collecting rainwater and "estufas lorena," which are stoves made of mud and sand designed to help lessen the risks of burns and respiratory problems from smoke. Upon my arrival,

I was disheartened by the level of poverty I saw. There was no electricity, no running water; homes were made of aluminum sheets and children were running with bare feet in creeks contaminated with a sewage plant leak. Like Isabel, many of these children suffered from deadly diseases. I went with Javier to 14 different homes that had adopted the "estufas lorena," and saw how the adoption of such simple technology had changed their lives. The design of these new stoves included a pipe that led the smoke outside the homes, leaving the fire in a defined, intact



Julia Rasooly

place, which resulted in less burns and asthmatic problems. I was very touched by this experience – and amazed at how this organization was providing great opportunities for the underprivileged people in that area.

I hope to one day go back to Oaxaca and see fewer Isabels suffering from water-borne diseases in the clinics. I also

hope to help set up a collaborative research program with Niño-a-Niño, and form a liaison between Stanford students and Oaxacan children, to have them hand-in-hand, learning from each other's cultures and strengths, and building a bright future for tomorrow's children.

Ducks Swimming in a Stanford Fountain

Painting by Megan Insco, SMS VI



Leader in Medicine: Dr. Samuel So

Roberto Valladares, SMS I

Dr. Samuel So, the Lui Hac Minh Professor of Surgery, is the Director and Founder of the Asian Liver Center (ALC) and Director of the Liver Cancer Program. As a world-renowned surgeon, he is on a mission to eradicate hepatitis B worldwide and reduce the incidence and mortality associated with liver cancer. To accomplish these objectives he founded and directs the ALC and the Jade Ribbon Campaign. The ALC is a national and international leader in the fight against hepatitis B and liver cancer by its three-pronged approach of outreach & education, advocacy, and research. The Jade Ribbon Campaign was launched by the ALC to raise awareness of hepatitis B and liver cancer in the Asian community.

What do you feel that you learned during medical school at the University of Hong Kong that you would not have in the US?

I taught my classmates how to play American football (smiling). I learned that the prevalence and the common causes of diseases vary geographically. For example, the common cause of liver disease in this part of the world is not the common cause of liver disease in that [Asia] part of the world. I became more knowledgeable about health disparity because sometimes health disparity is not just access to care; very often it is due to geography because the geographic distribution of diseases is different. To eliminate health disparities you must first be aware of differences in disease prevalence and collect data on where your patients are coming from. One size doesn't fit all.

What led you to surgery?

During medical school I traveled back to the US every summer to conduct research with a very smart surgeon who treated me like extended family. He always challenged dogmas and taught me not to believe in everything that I heard. I am rebellious because I like to challenge dogmas and ask for evidence. Medicine can be like kung fu, where they teach you how to move but often without reason. Some of our practices are evidence-based and some are more like kung fu or voodoo. I remember that as students we were taught to scrub our hands for ten minutes before entering the OR. The nurses were always watching you and breathing down your neck if you didn't. In the end it was all proven to be voodoo and now the scrub in is composed of a short two-minute scrub. If you are smart you can make yourself famous by doing research to challenge dogmas.

Why did you go into academics?

I have always been very inquisitive. I have an active interest in fine-tuning things, trying to improve outcomes, and working to reduce mortality and disease burden. My first job

was at Washington University in St. Louis, where I ran the transplant program at St. Louis Children's Hospital. After a few years in St. Louis, my wife and I decided that it was time to move to warmer weather and better Chinese food. I took a job in private practice with the transplant group at California Pacific Medical Center. Moving to Stanford was not good for me financially, but my job here allows me to work with great students. Every year I have around 20 undergraduate students working with me who keep me motivated by coming up with great ideas.

How has your Chinese heritage impacted your ability to see and meet the needs of the Asian community?

A number of Chinese academics, including myself, get the feeling that in this country Asian statistics are invisible. Asian Americans are still a very small part of the population, only four-and-a-half percent. The health care needs of this community are often overlooked because people don't think they need any help. This has led me to become an Asian health activist.

How did you become interested in hepatitis B and liver cancer?

In medical school I didn't know anything about health disparity and I certainly wasn't an activist. The closest I came to being an activist was growing my hair down to my shoulders. When I came out to California I saw many Asians dying from liver cancer caused by chronic hepatitis B or hepatitis B-induced cirrhosis. The data show that one in 10 Asian Americans, especially foreign-born, have chronic hepatitis B. Two out of every three that test positive don't even know they are infected because they have no symptoms. For non-Asians the prevalence of chronic hepatitis B is around one in 200.

Can you describe some of the projects that you are involved in internationally?

Over 76 percent of those chronically infected with hepatitis B are in Asia, that's about 266 million people, or eight times the



Dr. So (far right) with students at the ALC. Photo by Roberto Valladares

total number of people living with HIV in the world. In 2004, in partnership with the American Cancer Society, we went to the Philippines. Our team sat down with health administrators and senators and identified two major problems: (1) there was no funding for the hepatitis B vaccine; and (2) the timing of the first dose was wrong. This meant that the most vulnerable infants were not protected. We gave our recommendation to the politicians and two months later one of the senators introduced a bill that effectively addressed our findings. That was a major impact!

I also do a lot of work in China. The country accounts for almost one of three persons in the world with chronic hepatitis B. There has been no political will in the past to spend money on educating the public, nor a national program to educate pregnant women on the three-shot vaccine for newborns. We have been working on education and a catch-up vaccination program because 40 percent of children in China are not protected from the hepatitis B virus. We partnered with the Chinese government to implement a program of free catch-up vaccinations. We started small and each year we have gotten bigger and bigger! Last year we vaccinated half-a-million children. That was the largest single catch-up hepatitis B vaccination in the history of China. As a result of this program, the Chinese government, which has never provided free catch-up vaccination, is now seriously considering replicating that model across the nation.

What are the most difficult or challenging aspects of your career?

There are only 24 hours in a day and there is a lot of work to do. As director of the Liver Cancer Program, I perform a lot of liver cancer surgery. It motivates me because I see people dying unnecessarily from a disease that can be prevented. I encourage my colleagues in clinical practice to spend as little

as half-a-day-a-month volunteering for an organization to help promote disease prevention. Prevention is incredibly important but it seems that nobody makes any money off of it, while everybody makes money from treatment.

What are your interests outside your career?

I like to fix things around the house. I am the type that likes to build my own computers, build my kids' computers, and build my own home network... I'm a techie! My wife and I try to travel so that we can learn how people live in and enjoy the different parts of the world. I was in Chile last year to visit my son who was studying abroad there

and next month my wife and kids are going to Kenya. We have three identical (triplet) boys who all want to go to medical school.

Do you have any advice for medical students interested in combining an academic career in surgery with international work?

You can still change your mind! The key to success is finding your passion. As a surgeon you can be a very effective spokesperson for preventative health because the end result of non-prevention is that you come and see me. That is why you have the Surgeon General, not the Internist General (laughing). We [surgeons] tend to be good leaders because we are confident in leading a group. In the OR you are the captain of the ship. You have to be in charge and make sure every precaution is taken to minimize risks to the patient. You must always keep your eyes open to see what the monitors say, as you can't just rely on anesthesia to make sure it all goes right. When you have a bad outcome, blame yourself and don't blame other people.

Don't be shy to take on a challenge that you are not trained to do, because if you are really passionate about it you could accomplish more than someone who has a so-called "degree" in it. Personally, I don't go overseas to cut people. Much of the help that is needed in other parts of the world is not another person to go and cut, but instead a person to take care of the big picture in a sustainable way. Don't promote a system where people rely on your handout. The only way that you are going to affect change in health behavior is to advance the belief that people should change for themselves, their family, and their neighbors. We charge for everything that we do at the Asian Liver Center, even if it is only 10 or 15 dollars, because the money motivates people to take ownership of what they are doing.

