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Letter from the Dean: Einstein and Global Health

On June 23, 2008, I had the privilege of hosting Dr. Anbumani Ramadoss, at that time the minister for health of the government of India, for a half-day of presentations and discussion of Einstein programs in India. Coordinated by Sanjeev Gupta, the Eleazar and Feige Reicher Chair in Translational Medicine at Einstein, presenters described Einstein’s educational and research programs in infectious disease, obesity, diabetes and neurodegenerative disease in a number of cities and rural areas of India. Dr. Ramadoss expressed his deep appreciation for the quality and impact of Einstein’s programs in his country. I took pride in the accomplishments of our faculty, who are extending the reach of their efforts halfway around the globe. At the time, I also remember thinking that it would be rewarding to have an opportunity to see some of this work firsthand.

An invitation to speak at the 40th annual meeting of the Endocrine Society of India provided such a chance. The meeting was held from December 9 to 11, 2010, on the campus of Christian Medical College (CMC) of Vellore, one of the top-ranked medical schools in India, and the site of a fruitful collaboration between Meredith Hawkins, a diabetes expert and professor in our department of medicine, and Dr. Nihal Thomas, a leading diabetologist at CMC Vellore. In addition to Dr. Hawkins and me, Einstein was represented at the meeting by another endocrinologist, Radhika Muzumdar, associate professor of pediatrics. With Drs. Hawkins and Muzumdar, I toured the hospital facilities and research laboratories of CMC Vellore and was impressed by the sophisticated, as well as compassionate, care being offered to what seemed to me an overwhelmingly huge number of patients. Although Vellore is a relatively small city (population about 900,000), patients are referred to Vellore from all over India and abroad.

Following the meeting, I travelled from Vellore, which is some 120 miles west of Chennai (formerly Madras), a large city on the coast of the Bay of Bengal, to the former French colonial town of Pondicherry. I had been invited to meet there with the medical staff of the Jawaharlal Institute for Postgraduate Medical Education and Research (JIPMER), which unlike CMC Vellore is an Indian federal government medical school and hospital. JIPMER is both an educational institute that offers undergraduate and postgraduate medical training and a working hospital that provides inexpensive medical care to a large number of patients. As I toured JIPMER, I was again struck by the excellent training of the medical staff, the sophistication of some of the services offered, and the volume of patients seeking care.

While some of the major problems seen by the medical staff were exotic in comparison with those we see in the United States (for example, snakebites, which are frequent in rural South India), one major problem was all too familiar to me: type 2 (adult-onset) diabetes. I had an in-depth discussion with the medical staff about the causes of the tremendous rise in the incidence of diabetes all over India (more on that below), and what implications it held for an already overburdened healthcare system.

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This is where India’s inadequate resources, compared with those typically found in the United States, were most striking to me. The lack of refrigerated insulin and glucose-monitoring strips for patient management is an enormous problem, making the importance of prevention even more critical than in the States.

Inadequate resources, even in an emerging economic power such as India, are just one of the causes of the huge disparities in health, whether measured by life expectancy or by burden of disease, between the developed and the developing world. In my medical student days (I graduated in 1971), efforts on the part of U.S. medical schools to address global health disparities were distinctly rare. Although the Peace Corps was established by President Kennedy in 1961 as a program for Americans to offer service to developing countries around the world, it was never particularly focused on healthcare issues. Furthermore, Peace Corps volunteer numbers peaked at 46,000 in 1966, and the program has never since enjoyed the same popularity. In striking contrast, over the past few years, interest in global health issues has grown considerably, and the current generation of medical students includes many who actively seek direct involvement in global health programs. Einstein has been a leader in this arena, and that is one of the factors that attract some of the best, brightest and most dedicated students to the College of Medicine.

The Einstein Global Health Center serves as a central coordinating structure for all of Einstein’s global health activities, with the ultimate goal of reducing disparities in health and alleviating human suffering. The center’s objectives encompass the educational, research and service missions of the College of Medicine. A steering committee (currently chaired by Louis Weiss, professor of medicine and an expert in parasitology, and previously chaired by Vinayaka Prasad, professor of microbiology & immunology and director of Einstein’s NIH-funded AIDS International Training and Research Program; see http://www.einstein.yu.edu/globalhealth/about-us.aspx for a complete listing of the committee members) provides overall guidance for the center’s activities and reports to the dean’s office to facilitate cross-departmental, interdisciplinary initiatives. The breadth and depth of the center’s activities (see figure 1) are impressive.

Figure 1: Locations of Einstein global health projects
A fair question I sometimes get is why Einstein should focus attention and resources on global health given the major unsolved health problems in the United States and, more locally, the Bronx. One answer is pure altruism; taking a global approach to alleviating human suffering and disease is the “right thing to do.” But there are also more selfish reasons. The potential of “health diplomacy” to improve America’s standing in the world should not be underestimated. By itself, it cannot solve the threat of terrorism and lead to world peace, but such diplomacy should be a key component of an overall strategic approach. To be effective, global health programs must be culturally sensitive and sustainable, and strongly involve local communities.

Another rationale for vigorous global health programs is the increasing interconnectedness of the world. With once-obscure viruses that may have been endemic to a remote corner of the earth now capable of traveling rapidly around the globe by plane, it is in our interest to have in place effective resources for monitoring disease emergence in remote locations, and for preventing or rapidly confining local outbreaks. The recent emergence of West Nile virus in New York City is a specific example of what can occur; the SARS outbreak that threatened China and Canada is another.

Finally, it should be clear that global health activities offer an opportunity for bidirectional information transfer. Lessons learned by Kathy Anastos in treating victims of the AIDS epidemic in the Bronx informed her program for treating women in Rwanda who had been raped during the genocide and infected with the AIDS virus. Likewise, Meredith Hawkins and Elizabeth Walker of Einstein’s Diabetes Research Center are applying what they have learned from the diabetes epidemic in the Bronx to their efforts in India and Uganda. In both examples, unique insights gained from global health activities inform our understanding of AIDS and diabetes, offering us the potential to improve our local efforts.

Information transfer is not the only thing that’s bidirectional in global health. We often focus on the threat of novel infectious agents reaching the United States from abroad. We tend to be less cognizant of the potent chronic disease–causing “vectors” we export in the other direction. The burgeoning diabetes epidemic in India and elsewhere in Asia is a good example. My admittedly unscientific assessment, as I traveled across India, suggested an abundance of fresh and nutritious fruits and vegetables in local markets in towns and roadside stands (see figure 2). Untimely rains

Figure 2: Fresh and nutritious fruits and vegetables on sale in local markets and at roadside stands

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had evidently ruined the onion crop in several Indian states, resulting in a severe escalation in prices for this staple, but in a country with a huge population of vegetarians, the availability of relatively affordable fresh produce was perhaps unsurprising.

What was more surprising was the incredible popularity of McDonald’s, with outlets in almost every one of the gleaming new shopping malls dotting the Indian landscape. Many nonvegetarians in India avoid beef and pork, which one might have thought would challenge a franchise built on the Big Mac and McRib. But never underestimate the marketing skills of McDonald’s. Offering chicken (the Maharaja burger), lamb and vegetarian options (see figure 3), consumption of the high-fat, high-salt, highly processed food products at McDonald’s has become a status symbol for the expanding (in more ways than one) Indian middle class and those who aspire to join it. Other Western fast-food franchises such as KFC and Pizza Hut are also widely and increasingly found.

Coupled with the “Westernization” of the diet is a rise in physical inactivity. The widespread availability of low-cost, gasoline-powered vehicles, in addition to reducing physical activity, brings more pollution, not to mention traffic mayhem (see figure 4). A billboard advertising a fitness club (see figure 5) was a telltale sign that Western cultural values had reached the Indian upper classes. Given the popularity of yoga in the United States, it may have been a sign of cultural

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cross-pollination that the figure shown on the billboard was in the “trikonasana” yoga posture. Just as India has emerged rapidly as an economic power, it is experiencing a dramatic rise in obesity and diabetes that has taken several decades to develop in the United States. Indians tend to be more susceptible to diabetes and to develop it at lower body mass index values than is typical in American and European Caucasian populations. Left unchecked, the consequences of the diabetes epidemic will be devastating.

In the last stage of my trip to India, I flew from Chennai to Delhi in the North to visit some of the classic tourist sites there. In Agra, I made the obligatory visit to the Taj Mahal, the mausoleum built in the early 17th century by the Mughal emperor Shah Jahan for his beloved wife, Mumtaz. Constructed largely of exquisite Makrana marble, it deserves its status as one of the world’s architectural wonders (see figure 6). As our guide led us around the building, he pointed up high toward one of the marble-clad vaulted arches and casually asked me if I had heard of the famous scientist Albert Einstein. I responded affirmatively. He then directed my attention to a pattern of discoloration in the marble, which I had to admit bore more than a passing resemblance to a bust of our school’s namesake (see figure 7). I don’t know who first noted this image and passed it on so that Taj Mahal guides could surprise tourists with this observation. But I do know that even though Albert Einstein never traveled to India, he would undoubtedly be proud of the humanitarian and scientific activities of his namesake College of Medicine in India and around the globe.

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