



International Orthopaedic Surgery Update

James Friedman, MD



I will never forget watching the fear in my patient's face as he received a below knee amputation with only lidocaine for anesthesia, the third one of the day. Since his house collapsed in an earthquake, he had spent the last four months trying to provide for his family walking on an infected tibial non-union. Although this fracture would have received earlier definitive treatment in a country like the US, this was not an option for a poor Haitian farmer. With the increasing pain and weakness associated with infection, amputation became his only option.

Of course, this is not an isolated story. Estimates report that 11-33% of global morbidity is secondary to surgical disease. Furthermore, the treatment of traumatic injury in developing countries positively influences not only the patient acutely, but also the livelihood of his family and even country. The economic impact of surgical disease is staggering, representing a loss of up to 2.5% of GDP in some countries. Although this may not sound like much, this is equivalent to at least 12.3 trillion dollars between today and 2030. Trauma has been reported to make up over 1/3 of these costs and, in some developing countries, it is the primary cause for GDP loss. Regaining these losses has been suggested by economist Jeffrey Sachs to be enough to raise some countries out of extreme poverty.

Over the past few years the Penn Orthopaedic Surgery Department has benefitted from its' increasing involvement in global orthopedics through improved learning opportunities, increased interaction with other fields, enhanced interaction with medical students, and by opening further opportunities for growth. Attending and resident education has benefitted from increased options to travel to low resource areas from recent trips to Trinidad, Nicaragua, and India. It is on these trips that residents and attendings have described the benefit of relying on basic principles of orthopedic management to operate, as opposed to relying on the instruction manual of the most recent hardware. At this year's first annual Global Surgery Symposium, Dr. Spiegel and Dr. Sheth represented orthopedics and helped lead discussion with other fields including plastic surgery, general surgery, oncology, and urology to discuss funding, delivery methods, and ethical considerations in future trips. Involvement abroad has also allowed new opportunities for Penn Orthopaedics to interact with the medical students. This year, multiple well attended medical student lunch talks and interactive sessions have been given by Dr. John Kelly, Dr. Neil Sheth, Dr. David Spiegel, and

Dr. Derek Donegan. Furthermore a large number of students have begun research projects and have published papers with our attendings and residents directly related to global surgery. Finally, as Penn Orthopaedics is becoming increasingly recognized as a potential source of global outreach, we have received multiple offers to participate in sites as far away as Botswana and Vietnam, allowing Penn a unique opportunity to participate at these sites.

As our role in global orthopaedics evolves, it is becoming increasingly realized that in order to make an impact on reducing the global burden of surgical disease, better long term strategies need be developed. This includes cross-departmental cooperation (including nursing and anesthesia), longer term surgical infrastructure investment, and reliable patient follow-up systems. A few of our faculty have already taken the lead in developing these systems, including Dr. David Spiegel establishing clubfoot clinics in Nepal, Dr. Neil Sheth developing a self-sustaining arthroplasty/trauma hospital in Tanzania, and Dr. Jaimo Ahn with Dr. John Esterhai working to identify a permanent orthopedic site in Botswana alongside our medicine colleagues. In addition to all this, the University of Pennsylvania Center for Global Health has offered both advice and financial support for our endeavors.

The importance of delivering orthopaedic care to low-resource countries is only just beginning to be recognized. Delivering orthopaedics in developing countries helps individual patients, reduces family economic burden, and may even help raise entire economies out of extreme poverty. For our own department it allows us to provide unique learning, research, and leadership opportunities to our residents and attendings. It is therefore important as we move forward to continue to support our attendings interested in international program development, to find ways to allow residents time abroad without affecting patient care at Penn, and to continue to seek new opportunities in cross-departmental collaboration and research. With these goals in mind, Penn orthopaedics, with its history of interest, involvement, and resources, has a great opportunity to become one of the leaders in the field of global orthopaedics over the next few years.

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