

POGO Travel Journal

Spine Deformity in Kingston, Jamaica

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Location: Kingston Public Hospital (KPH), Kingston, Jamaica. It is one of the 24 public hospitals operated and managed by the government of Jamaica. It was built in 1776 and it is the only public hospital in Kingston, serving a population of 1.2 million. Patients 12 years and older are seen at KPH.

Where did you stay? We stayed at the Spanish Court Hotel which is about 3 miles from the hospital. The Ministry of Health generously provided transportation to and from the hospital each day.

What are health concerns? Infectious diseases like hepatitis A and typhoid were the concerns specific to the area. Additional precautions for mosquito borne illnesses such as malaria were also encouraged. Temporary travel insurance was advised in the event of a medical emergency.

What are things to bring? We brought sterile and non-sterile gloves, surgical gowns, operating room scrubs, bouffant caps, booties, masks, and eye protection. We advise creating a preferred instrument set: osteotomes, elevators, retractors, needle drivers, as these instruments might be damaged or not available. We utilized a list of instruments which were compiled from past experiences at KPH. We also brought goniometers, pencils, and markers to analyze and measure the spine x-rays. We printed out intraoperative checklists (i.e., response to neuromonitoring changes, etc.) prior to departure. It is

also a consideration to change your cell phone coverage to include international calls. Finally, from our perspective, a portable speaker for the operating room could be one of the most important pieces of equipment! We also carried routine travel supplies for gastrointestinal problems, allergies, and fever, along with mosquito repellent.

How often have you traveled to this location? The Duncan Tree Foundation (DTF) initiated this partnership with the help of Dr. Boachie-Adjei, former president of the SRS and founder of Foundation of Orthopaedics and Complex Spine (FOCUS). At this point, one to two visits occur each year with over 140 scoliosis surgeries performed to date in conjunction with Dr. Ian Neil and the orthopaedic team at KPH.

What are the goals (education, service, other) of the trip? Our ultimate aim is to partner with the highly skilled surgeons at KPH to build capacity within the hospital to perform spinal deformity surgery on a routine basis. To that end, there are several areas of focus.

Clinical: We see patients in clinic and perform 10 spinal deformity surgeries during each trip. To qualify for evaluation and surgery, each patient demonstrates a significant financial barrier to treatment.

Educational: In both clinic and the operating room, we worked with residents from the University of the West Indies and several members of the attending staff at



Figure 1.
Preoperative clinic
day at Kingston
Public Hospital. The
combined team (KPH
and DTF team)
review radiographs
of a patient in clinic.

KPH. Each case was discussed in detail with the trainees to foster bidirectional learning. We also presented a well-attended CME event for interested orthopaedic surgeons, residents, and pediatricians on one of the evenings during the week.

Resources: The main challenges faced by our peers at KPH are operating room time and resources (surgical implants and in-house neuromonitoring). Although not the primary focus at the current time, future efforts will need to focus on establishing a stable neuromonitoring service and a steady supply of cost-effective surgical instruments and spinal implants.

Who are your typical patients? Patients come from across the island to be evaluated for treatment. Some patients that were treated during this trip were from the Kingston area, but some traveled as many as 4 hours for treatment. Visiting hours in the hospital were from 11am-12pm and 4pm-6pm. Some of the families had to return home while the patients recovered in the hospital because there was no place for them to stay and the distance was too great to travel back and forth each day. Those families were informed of the discharge day and returned at that time.

Who is on your team? The home team (KPH) is made up of several attendings (Drs. Pierre Williams, Andrew Bogle, Dean Wright) and a senior attending (Dr. Ian Neil) who supervised at a distance, three to four University of the West Indies orthopaedic residents,

nursing staff, scrub techs, and several anesthesiologists. The visiting team (DTF) was made up of two visiting attending surgeons, a pediatric orthopaedic fellow, two implant company representatives, two neuromonitoring professionals, and one scrub tech. The teams worked in partnership throughout the week.

What support did you have from your host community? A good relationship exists between the Duncan Tree Foundation and the administration at Kingston Public Hospital. Further, the surgeons from KPH and the visiting surgeons have also developed collegial friendships over time. The Ministry of Health, which is part of the government of Jamaica, also provides support for the partnership.

What follow-up is there after you leave? There are three orthopaedic teams at Kingston Public Hospital. We have consistently worked with one of those teams over the years led by Dr. Ian Neil. Dr. Neil and his team



Figure 2. Scoliosis educational conference, March 2020



Figure 3. KPH and DTF team operate together on patients with spine deformity.

not only screen patients preoperatively, but they also follow each patient after surgery in clinic. The visiting surgeons stay in touch with the KPH surgery team via WhatsApp regarding the immediate post-surgical recovery and long-term follow-up.

Mission Travel Journal

Pre-Trip Preparations: Prior to the trip, we reviewed the list of possible patients as a group including the visiting surgeons, the KPH surgeons, and the KPH anesthesia team. Brief medical history, radiographs, and clinical pictures were available for review. Additional imaging or work up was discussed and final plans made. Trip logistics and any issues were resolved at that time as well. The visiting team also had several conference calls prior to each trip to discuss expectations, the plan, and to get to know each other.

Day 1: We arrived at the clinic at 9am and screened 20 patients whose curvature met surgical criteria. We conducted a preoperative/indications clinic in combination with the surgeons and anesthesia team from KPH (Figure 1). Interacting with the patients and their families was meaningful. Moreover, we discussed the cases with the Jamaican residents, medical students, surgeons, and the anesthesia team. After clinic, our visiting team worked with the KPH operating room techs to get the instrument sets ready for the next day. Finally,

we participated in a dinnertime educational conference focused on the management of scoliosis. Attendees included interested orthopaedic surgeons, orthopaedic residents, and pediatricians from the area (Figure 2).

Day 2: This was our first day in the OR. I (MH) was paired with an intern who had not yet scrubbed a spine deformity surgery during his medical training. We performed two AIS cases together. An occasional mosquito, significantly limited instrumentation, and unfamiliar staff helped to accomplish one of my main goals for the trip: to get outside of my comfort zone. Being stretched past my pre-established limits and realizing that they were not in fact my actual limits was very rewarding. Interacting with a new team and establishing rapport was very rewarding. Achieving outcomes in Jamaica equal to that in my stateside practice with less “stuff” than I have in the U.S., makes for a very rewarding day (Figure 3).

Day 3: We had the opportunity to work with one of the attending surgeons from KPH. Dr. Bogle and I are about the same age and share some interests. Our first case was a patient with severe congenital kyphoscoliosis. We lost signals during the case and worked through that as a team. We followed that case with an AIS case that went smoothly. The whole day was essentially like a mini conference. We shared philosophies, surgical

techniques, agreed, disagreed, and ultimately learned from each other. Whereas Day 1 seemed more about pushing me past my comfort zone, Day 2 was highlighted by partnership with my Jamaican colleague—very rewarding but in a different way.

Day 4: I had another chance to work with the intern on an 85-degree lumbar curve in a patient with Down Syndrome. After the cases wrapped up for the day, we spent the afternoon in the mountains overlooking Kingston at a nice restaurant to unwind and share our experiences as a team. It was a great opportunity to reflect on the trip and spend time with each other.

Day 5: We rounded on the patients in the morning with the KPH residents. The open-air ward was different than my hospital, but the early mobilization and recovery was quite similar. The patients were in good spirits and very happy. After saying goodbye, our visiting team headed to the airport.

Post-Trip Follow Up: Communication is carried on after the visits between the KPH and visiting surgeons utilizing WhatsApp. We are initiating a needs assessment amongst the group as well to ensure that we continue to work toward a shared vision with primary emphasis on the priorities of the KPH team.

What are five challenges you experienced during this trip and how did you deal with them?

1. Customs

Our neuromonitoring equipment was detained in customs. Apparently the proforma did not match the equipment in hand and the customs officers seized the equipment. We were informed during our clinic day that either we would not be able to conduct surgeries during the trip or we would be delayed by one day. Several team members returned to the airport with a Ministry of Health official to address the concerns. Thankfully, the equipment was cleared, and we had no delay; however, it did remind us that flexibility, relationships, and goodwill are important components of any trip.

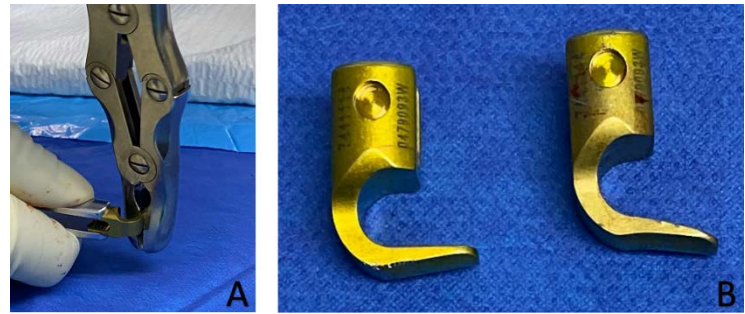


Figure 4. A) Rongeur was used to modify the hook; B) Final alterations made to implants to accommodate patient's anatomy

2. Implants

We planned for 6.35 mm and 5.5 mm sets to be available during the trip. Once in Jamaica, we had 4.5 mm and 6.35 mm sets. The 4.5 mm set was less than ideal for our adolescent patients. A collective decision was made to proceed with surgery and the sets were assigned to each patient depending on patient size (i.e., the 4.5 mm set was used for smaller patients and patients with more flexible curves). There was one case in which I planned to use upgoing hooks at the uppermost instrumented vertebrae (UIV) on the concave side of a right main thoracic curve to elevate the right shoulder. However, the size of the hooks/radius of curvature was too small for the patient's anatomy. To navigate this mismatch, the hooks were altered to allow for accommodation to the patient's anatomy (Figure 4).

Innovation and adaptability are critical in these settings. We used a side-to-side connector to add a second rod on the concave side to increase the rod strength during initial correction maneuvers with the 4.5 mm set. This rod was subsequently removed but aided in obtaining a good correction by adding strength during the deformity correction. In another case, we had a fixed-angle screwdriver but only multi-axial screws. In order to insert the screws, we utilized a needle driver to attach to the tulip and insert the screws. In several cases there were no reduction tools, but we did have reduction screws. We placed the reduction screws at the apex on the concave side to minimize the distance between the



Figure 5. Pillow bolsters for positioning of scoliosis patients

rod and the tulip of the screw. There are numerous additional examples, but the bottom line is that we had to improvise. I now plan on it.

3. Surgeon Comforts

There are certain aspects of the operating room that we sometimes take for granted. For example, I typically use a drill technique to cannulate pedicles. On these trips there are no drills available. In my home hospital, I also have access to fluoroscopy to confirm levels and check screw placement. Although there is a fluoroscopy machine at KPH, it lives in Room 3 and I always operate in Room 4. Additionally, we do not have access to a radiolucent operating table at KPH. In order to localize levels, we used the ribs as well as the posterior elements of the bony anatomy that is unique at the thoracolumbar junction to confirm levels. Even positioning is different (Figure 5) which led to difficulty establishing proper sagittal alignment prior to incision (i.e., increased lordosis). These are several examples and there are numerous more of how these trips remind me of our dependency on technology and creature comforts. They are also examples of how I am forced outside of my comfort zone, which I view as an unmatched opportunity for growth both as a person and a surgeon.

4. Increasing Didactic Education

Historically the partnership has been built around surgical care with the visiting team bringing neuromonitoring and implants. Education and

bidirectional learning occurred with each case between attendings and also with the Jamaican residents. However, Dr. Lee and I hoped to increase the educational impact of trip. Under the current schedule, each trip has limited time outside of the time dedicated to patient care. During the most recent trip, Dr. Neil organized a fantastic event for interested orthopaedic surgeons, orthopaedic residents, and pediatricians (Figure 6). It was a highlight of the trip and will likely become a larger emphasis moving forward. In fact, my colleagues in Kingston and I are currently planning virtual journal clubs to continue connecting as travel will likely be limited during the pandemic.

5. Understanding the Impact of Short-Term Trips

There are both pros and cons to these trips for the home institution (KPH) and the visitors. Initially, I was mostly aware of the benefits; however, over time I have become

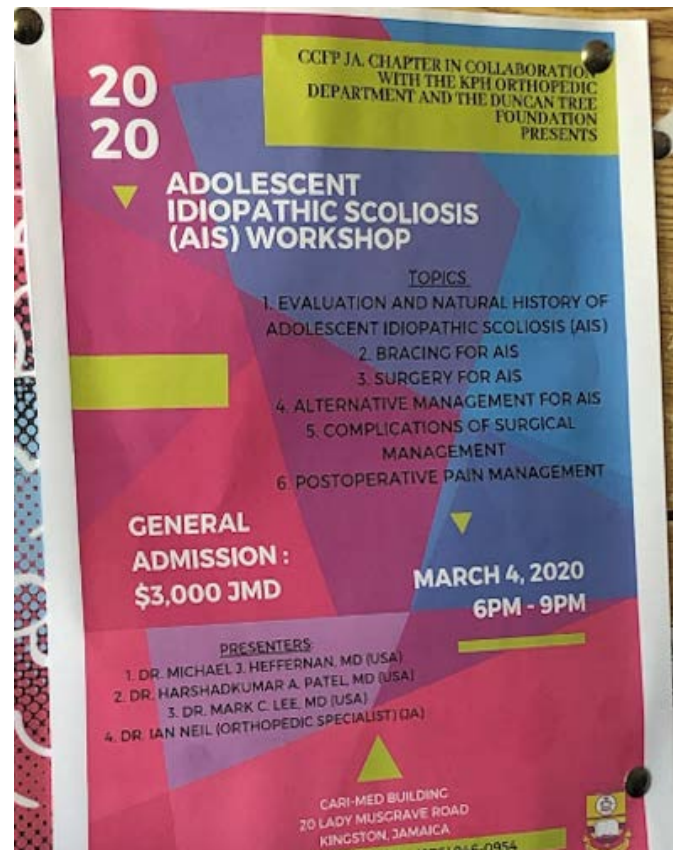


Figure 6. Flyer for scoliosis workshop



Figure 7. A gift was given to each member of the visiting team from a patient's family.

increasingly aware of the institutional cost/burden. For example, there are three orthopaedic teams at KPH and a total of four operating rooms. Each of the orthopaedic teams has 8 hours of OR time per week. During our visits, we utilize two rooms over 3 days while working with one of the three KPH orthopaedic teams. After inquiring, I was informed that the KPH orthopaedic team works extra hours on the weekends before and after our visits to take care of their trauma patients whose surgeries are adjusted to accommodate the visit. Further, one of the visiting days is a Saturday which requires operating room and anesthesiology staff to volunteer to work on the weekend. Both the surgeons and administration at KPH are enthusiastically supportive of this relationship, which is great. However, the potential for negative impacts that accompany the benefits should never be underestimated.

Case or Tip of the Trip?

Several themes stand out from these trips:

- True growth only occurs outside of one's comfort zone
- Resources do not dictate humanity (Figure 7)
- Relationships add richness to life
- Learn from each other
- Flexibility/adaptability is key

The opportunity to work with and learn from people in different cultures is an overwhelmingly positive experience. These trips are very meaningful to me. The challenges make me a better surgeon, the interactions make me a better person, and the relationships built will hopefully continue to grow over time.