

IVP to GHANA

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RSNA under a generous grant from FUJIFILM supports the RSNA International Visiting Professor Program. 4-6 IVP programs are supported each year coordinated via the Committee on International Radiology Education – CIRE. This year the IVP program supported a trip to Ghana. The Ghana Radiologic Society requested educators in pediatric radiology and interventional radiology. I was invited to participate with Dr. Ann Roberts an interventional radiologist who has traveled extensively teaching in previous IVP programs in Nigeria and Nepal.

Ghana, in West Africa, has a population of 26,000,000. There are currently 45 radiologists and approximately 40 radiologists in training in the entire country. In 2010 there were approximately 25 radiologists and in 2000 only 4. There are three radiology residencies that are currently accredited. After going to a 6 year medical school, students tend to work for a few years in clinics and then apply for a 4 year residency. Many of the residents find a hospital who will support their training with the expectation they will then go to that supporting institution to work. A few support their own training. There appears to be a minimal stipend for the trainees though I was told they don't always get paid. There are Ghana radiology board exams given each of the first 2 years then the fourth year including physics. From my understanding, these are typically oral exams with 3-4 people in a room showing cases to the trainee. There is a written portion as well – essays not multiple choice.

During our 2 weeks in Ghana, we rotated through three universities - Korle Bu (Accra) the oldest and most established teaching hospital with 18 trainees, 37 Military Hospital in Accra (? 8 trainees) and then flew to Kumasi and taught at Komfo Anokye Teaching Hospital. with up to 18 trainees. The last three days we drove to Cape Coast for the fourth annual Ghana Radiologic Conference with over 80 attendees including Monica Atalabi a pediatric radiologist from Nigeria who encouraged the Ghanaian society to apply for the RSNA IVP.

The days were well structured with two 45 minute lectures starting at 8 AM then several hours of hands on teaching, shorter talks and unknown cases. In the afternoon another two 45 minute lectures were presented.. At Korle Bu the lectures were taped and webexed to other sites. Hands on US demonstrations in pediatric US and transcranial Doppler were particularly popular.

Korle Bu Teaching Hospital (KBTH) was established in 1923 and is the third largest hospital in Africa with a bed capacity of 2000. The KBTH Radiology department is the largest radiology department in the country with 8 attending radiologists and 18 residents.

The department has a .5 Tesla MR magnet, a 320-slice Toshiba Aquillion One CT scanner, up to 8 ultrasounds, and a fluoroscopy unit as well as multiple conventional radiography units. Rad-Aid International, has collaborated with KBTH since 2012 and just placed a minipacs called MERGE in the department the week prior to our arrival - connected only to MR and CT (no Dicom connectivity with US or Fluoro). However, **during our time at KBTH the Fluoro and CT scans were broken** and only 3/8 US machines were in commission.

Equipment breakdown was a frequent issue. At 37 Military the MR/CT and Fluoro units were broken.. At Komfu both the **CT and MR were broken with no date planned to be fixed**. The fluoro unit was working and I helped with several VCUG's on children with posterior urethral valves who were to be repaired by a visiting pediatric urology team from Columbus Children's. With limited fluoro access, intussusception are reportedly reduced with US guidance.

The most striking problem appears to be the chronic breakdown of equipment. There is a disconnect between the government who purchases the machines and the physicians using them – installation and maintenance agreements are not clearly defined and the hospitals have limited funds to care for the equipment that the government purchases. Thus, chronic CT/MR/Flouro breaks with no repairs for months or years. EVERY CT was broken in each university we visited, Only one MR was working in KBTH. When we visited Cape Coast the hospital had a new CT and MR were purchased and delivered 1 year ago -- but never have worked.

These huge hospitals somehow run without much in the way of radiology support –. If needed, patients can go to private clinics where equipment is maintained by physicians/private administrators. The lack of working equipment impacts the educational experience of the trainees. While patients can go to a private clinical for CT/MR/Flouro, the trainees do not train at these clinics. While some residents are very well read and had access to STAT Dx and used RSNA teaching materials., the lack of hands on training was evident.

The lack of PACS to store images limits education opportunities as well – Trainees cannot easily share interesting cases. No images are stored for US – the few paper images taken are given to patient cannot be reviewed by others or by attending if trainee does the exam.

Without medical insurance, exams need to be paid for by the family up front before the study is performed. Trainees are powerless to get studies done without the payment to the hospital. Studies are expensive with VCUG over \$100.

The number of radiologists being trained in Ghana has quadrupled in the last few years. As radiology services become more readily available and reliably available, physicians will become more dependent on radiology for the care of their patients. The trainees are anxious to learn and become more subspecialized. I was thrilled that the trainees asked for extra pediatric and obstetric radiology training. I met several wonderful residents particularly interested in pediatrics. They were well read and got many of my unknown cases despite the limitations in training they face. The educational materials that WFPI offers will be well used in Ghana.

