

Lao Friends Children's Hospital Radiology WFPI Outreach Report

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Financial Disclosure

Team Rad: Mission Laos received USD5000 funding from WFPI and collected a further £2600 through fund raising. Money was put towards travel, accommodation and meal allowances. Excess money from the fund raising was donated to the hospital to purchase further lead apron protection.

Introduction

Laos is a landlocked country in Southeast Asia and one of East Asia's poorest countries. Its population was estimated to be around 6.8 million in July 2014. Outside the capital many people do not have access to basic facilities such as toilets.

Current data suggest 7% of children die before their 5th birthday.

Children's deaths are primarily due to communicable diseases with malaria, acute respiratory infections, and diarrhoea the main causes of mortality as well as morbidity. Vaccination against childhood diseases was expanding. Healthcare is rudimentary at best in Laos. There are no private hospitals. To put things into context, tourists are advised to visit the doctors at the French Embassy or Australian High Commission for minor ailments and to go to Thailand for anything serious.

Friends Without A Border has recently opened the children's hospital but is reliant on overseas experience to support their staff and doctors. The hospital is located in the northern city of Luang Prabhang in Laos. They currently do not have a radiologist. X-rays and ultrasound are being performed by two limited experience nurses with no formal radiography training and images are interpreted by the local and expatriate volunteer doctors. Tele-reporting support is provided by WFPI. Equipment which includes a portable x-ray machine and a portable ultrasound machine were installed by Rad Aid. They currently do not have cross sectional imaging and the closest CT scanner is an hour away with questionable radiation safety. Health care is not free in Laos. Theoretically speaking, children under the age of 5 *should* receive free health care from the government.

We are a team consisting of 1 paediatric radiologist, 2 sonographers and 2 radiographers who went to Friends Without A Border Children's Hospital, Laos to offer hands on teaching, service assessment and education.

The Hospital

My views are based on a limited 12 day observation.

The hospital has limited services but aims to expand. It currently has a

1. 20 bed in patient department
2. Two "soon to be" ITU rooms with no negative pressure. Facilities are very basic.
3. Out-patient department with 3 rooms and see an average of 75-100 patients a day.

4. Three bay A&E department.
5. One library, 1 meeting room, 1 lecture room and space for staff and administration.
6. Surgical procedures are currently performed at the adjacent provincial hospital by the local surgeons.

The hospital however seems to be being run to a standard akin to a “western” hospital. Infection control, clinical and financial governance, patient confidentiality and education aim to mirror “western” practices.

The hospital is to be given to the local government in 2024.

Staff

Clinical and non-clinical staffs are divided into salaried, mostly local Lao staff and volunteer non-permanent international staff.

1. The local clinical staffs are usually on rotation. Medical school is usually 6 years followed by a 3 year residency program after which they are considered specialists. Their medical school is listed under the “International Medical School Directory”. Language of instruction is in Lao.
2. The international volunteers are multinational. This brings with it differing ways of management, communication and clinical decision making. Their roles are more educational than service provision. They are all teamed- up with a local staff member. They are dedicated and are keen to teach the local doctors.
3. The hospital has recently moved towards using the Metric (SI) system to prevent confusion.

Radiology “Department”

There is no radiologist on site. The local provincial hospital has a named radiologist who does not serve the Children’s hospital. An attempt was made to contact this radiologist but time was not available. There is no formal Radiography Technologist Training Program in Laos. Most teaching is in house and through trial and error.

There is a China made portable x ray machine and a China made ultrasound machine with no Doppler function. The quality of images is good.

The local doctors have very limited knowledge in X-ray and ultrasound. The international doctors tend to extrapolate their basic ultrasound skills into what they see as sonography. My personal opinion is this has risks and can lead to misinterpretation.



Radiology Technician Ability and Assessment:

There are two nurses that have been earmarked for training. There is currently no radiographer training programs in Laos. They had limited teaching by Rad- Aid followed by our team. They also buffer their knowledge through the internet. Their technical ability in radiography is close to acceptable (point and shoot) but there is room for further improvement. Knowledge in radiology physics is non-existent and radiation protection very limited.

There is room for improvement in ultrasound. Our assessment is they should only perform “very” limited ultrasound manoeuvres i.e. kidney/spleen measurements, sweep through liver for lesions and FAST scan for free fluid. They will require further training. Communication between clinicians and technicians which will be discussed below is an issue.

Recommendations

1. Attempt to make contact with the local radiologist should be made.

2. Develop a POCUSS syllabus that international and local clinicians will strictly adhere to. Any attempt to extrapolate this into “sonography” without proper training should be discouraged.
3. Fine tuning in radiography for the technicians.
4. Further training in ultrasound of at least 3 months for the technicians.

I have members from my original team who are ready to return for longer and I will be making a return trip in 2017.

Radiation Protection (please also see attached reports)

None of the staff have dosimeters. The X ray/USS room is 10 feet x 6 feet. There are 2 lead aprons and a portable lead shield wall. Unfortunately during our assessments, we found out that the minimum distance from source to the lead shield is not being met.

Recommendation and implementation

Education is key and we gave lectures for doctors and staff on radiation protection and safety. This should be a continued effort by future radiology volunteers and be a priority. We have advised the local radiographers to now always wear lead shielding. We have also donated our excess funds to buy a pregnancy appropriate lead shield.

Teaching

Classes occur between 8-9 am and 4-6 pm every day. Attendance during my time there for the 4-6 pm sessions was poor due to the clinical workload. There are also English and Lao classes run by a volunteer.

I was only able to give a limited number of formal classes which were interspersed with teaching by other staff. Most teaching was ad hoc and bed side. I had to re-do all my presentation when I arrived to suit the local needs and understanding. An example is their limited local teaching in x-ray interpretation. They all had a non- effective ABCD method. I redid my CXR and AXR teaching to mirror and help improve this technique. The local doctors, not a fault of theirs are easily confused as their English is limited. English has to be very basic and spoken slowly.



Recommendations

1. All future teaching to mirror the technique above. I am happy to share my slides. This is even more important as we will have radiologists from different countries with different methods of approach. *I am happy to lead a multinational effort to develop a set of agreed slides to be used as part of the outreach program.*
2. Formal teaching by visiting radiologist should be blocked off in the morning and be given as many time slots as possible. I would urge anyone to communicate this with the hospital if they intend to visit.
3. Go with an open mind and be prepared to be flexible and adaptive. I went with seven prepared presentations and used none of them in their original form.

Clinical Case Load

There is a wide range of "Developing World" diseases. Commons themes are TB, Melioidosis, malnutrition, Thiamine deficiency/Beri-Beri and during my time there I saw three cases of pathological fractures secondary to severe osteomyelitis.

Local taboos and practices play a large role in clinical conditions.

Recommendations

1. Prior preparation of above conditions will be useful but most of the time, prepare for the unexpected.
2. Be sensitive to local beliefs and cultures.

Hospital Radiology Work Flow

In patient multi-disciplinary (doctors, physiotherapy, dieticians, pharmacy and nurses) ward rounds occur every morning from 9-12 pm. Conversations takes place in Lao and English. English among local doctors is extremely poor and Lao among volunteer doctors is non-existent. Most of imaging requests are done after the rounds. Imaging request from out-patients and A&E occur ad-hoc. Request with clinical details (sometimes limited) are made electronically and a duplicate request with the name of the investigation is given to the technician on a small blue piece of paper. Imaging is not viewed in a low ambient lighting work station. Most of the time, they are done on a standard workstation with a large amount of background and sun light.

My assessments are

1. Clinicians and technicians are strongly encouraged to consider **at all times** that good communication is an essential part of good medical practice
2. Local clinicians and some volunteer clinicians are rightly proud of their radiology department. However, lucidity is required with regards to the department's limits, which are considerable in this nascent phase of the hospital's development
3. Poor understanding of radiology workflow and techniques by clinicians coupled with limited clinical knowledge by the technicians who are learning a complex skill gives rise to communication breakdown and misunderstanding.



Recommendations and implementations

The challenge is how do you create an imaging service in a low resource country hospital with no radiologist, no formally trained technicians and local clinicians with limited knowledge in radiology? The gap had to be bridged.

1. The technicians are to attend the ward rounds on a daily basis when they are not busy. This will foster greater team working and allow them to not only improve their English but understand the clinical context for imaging. This is in my opinion the quickest way for them to improve their knowledge.
2. Clinicians are to accompany their patients for ultrasound imaging to allow them to help direct the technicians and improve their own image interpretation skills.
3. I would recommend the clinicians to use a dedicated dark reading room to view images.
4. Continued outreach work.

Tele-reporting by WFPI

Prior to our arrival, all images done on that day including normal and non-complicated cases were automatically sent to WFPI for reporting. Although from my impression and feedback the workload was manageable, it prevented proper discussion of complex cases. After discussions with Dr Cheri NJ and WFPI, we have decided that only complex/ trouble shooting cases will be sent to WFPI and this will be decided upon by Cheri. This will also teach the local doctors to be self-reliant on their own abilities.

Recommendations

1. Complex and trouble-shooting cases only to be sent to WFPI with no set limits.
2. None formal opinions via e mail should be discouraged and all discussion to be made via WFPI or similar. This will allow a paper trail, improve governance and accountability. As the hospital aims to set the highest possible standard in health care, radiology should also reflect this.

Logistics and non-medical information

Luang Prabhang has direct flights from Bangkok and Hanoi and indirect flights from Kuala Lumpur and Singapore. The local airport has excellent facilities for international travellers. Most visitors will require a Visa on Arrival. Recommended route of entry is via Bangkok. Allocate approximately USD 30-50 a night for clean air conditioned accommodation. USD 10 is sufficient for daily budget meals. There is a range of accommodation to suite all taste. Luang Prabhang is also an excellent tourist destination and a UNESCO World Heritage Site. Accompanying partners and families will find myriad things to do. Food includes western and local cuisine. Sensible precautions should be made when eating out and drinking water. Transportation can be done cheaply by three wheeler tuk tuks or by hiring bicycles and motorbikes. We felt safe during our travels.

Do take time to visit Kuang Si waterfalls, the elephant sanctuary and cruise down the Mekong River. The people are friendly, conservative and practice Buddhism.

Summary

Laos is a poor country with limited resources. This is reflected in the lack of proper radiology and radiography training. The hospital is trying to make good of a very difficult situation and they should be commended for this. There is a lot of opportunity to train and develop the two radiology

technicians but this will require a lot of patience and time. They are eager to learn. Clinicians are to be made aware of the limitation of the radiology department and we need to encourage better communication between the clinicians and technicians. This can be achieved through technician attendance of rounds and clinicians attending ultrasound scans. More effort should be spent on ultrasound training as this is a training priority. Expat clinicians should also be encouraged to develop their skills in their home countries and to work within their limitations. Attendance of formal training in ultrasound should be encouraged if they attempt to use ultrasound during their outreach campaigns. Point of Care Ultrasound has a role but implementations should be in a controlled manner. Fine tuning in radiography for the technicians is also recommended but this is less of a priority.

Radiology teaching to local doctors should be made in an agreed format and structure to prevent confusion which can easily occur when you have radiologist from different countries. I would recommend more time allocated in the mornings for teaching by visiting radiologists.

As I am originally from the region, I would encourage contact and relationship be made with regional stakeholders such as Malaysia, Thailand and Singapore. They may be able to help with in-house training. I have already received this in principle from a private hospital in Malaysia who is happy to train the Lao staff for free.

A formal presentation and report of this trip will be made at the WFPI meeting in Chicago on the 16th of May. I am also happy to present my experience at other local and regional meetings.

Thank you

