

Report of observations concerning Sonography training in Rwanda

For Dr. NDUSHABANDI Desire

From Leif Penrose RDMS,RVT, RDCS
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CC: Terry Konn Ph.D.
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Thank you so much for extending an invitation to come to Rwanda and the Kigali Health Institute (KHI) to work with the Department of Medical Imaging in sonography. I believe my time has been productive for the medical community of Rwanda and for me as well. At the hospitals the physicians and staff recognized that a qualified sonographer could be quite helpful in the performance of sonographic examinations.

During my tenure I worked two weeks in the radiography department at Central University Hospital Kigali (CHK) and two weeks with the radiology staff at King Faisal Hospital. I spent one week teaching KHI radiography students. Additionally, I have provided a two day seminar for General Practitioners in sonography in the conference center of King Faisal Hospital and have worked several days with the Obstetricians of King Faisal Hospital as they performed sonographic examinations. I traveled to Rwamagana Hospital at the request of Dr. Amezendi and provided an inservice for five of the physicians including the proper operation of sonography equipment. I provided a four day inservice to the KHI Radiography faculty. I traveled on June 13 to Rwinkworu Hospital at the request of Dr. UMLISA Irene giving inservice to four physicians regarding sonography and Kizigura Hospital June 18, at the request of Dr. KANIMBA Emmanuel with inservice to 3 physicians. I am traveling to Kbagabaga hospital June 23, at the request of Dr. GATSINDA Melence and Kibilizi Hospital June 25 at the request of Dr. UYISABYE Innocent.

There are three primary issues regarding Sonography in the country of Rwanda.

1. An immediate need to upgrade the level of training of the primary care physicians who care for the 80% of the Rwandan people at the district hospitals
2. A long term plan, with gradual steps leading to sonographers who are allowed to practice within Rwanda
3. Modification of the KHI Radiographer training program to incorporate an introduction to sonography.

Primary Issue #1:

Most of the district hospitals within Rwanda have ultrasound equipment. The level of use of that equipment is quite variable based on the quality of that equipment, the care of the equipment and the level of training of the physicians. In some hospitals the equipment is sitting idle as no staff member feels competent to perform the examinations. In other facilities the machines are being used daily but the physicians recognize an acute shortage of understanding of important concepts of how the equipment operates and the fine points of diagnosis based on sonographic evaluation.

Recommendations for Issue #1:

Aggressive promotion of sonography education for physicians and other healthcare providers within the country is needed. This should occur at three levels.

- Seminars for practitioners similar to the one offered by KHI & King Faisal hospital are needed on a regularly scheduled basis but with longer time frames to accommodate more in-depth learning. These should run through a planned cycle of basic information followed later by intermediate levels then by advanced topics.
- There should be training at the local hospitals using the local machines on local patients.
- The curriculum of the medical students at Butare should be examined to see if there is room for the addition of sonography topics to the next generation of physicians.

These recommendations could be accomplished by a number of methods.

- The seminars could be provided by the medical staff of the two referral hospitals in Kigali, or by invited lecturers (physician and sonographers) from organizations outside the country.

- The training of local physicians and other staff at the local hospitals using the local equipment could be accomplished by visiting sonographers in partnership with one or more of the sonography societies such as the American Institute of Ultrasound in Medicine (AIUM) and/or the Society of Diagnostic Medical Sonography (SDMS).
- The curriculum issues of the medical students training would need to be coordinated with the faculty of the medical school and Rwandan Radiologists or in partnership with some external societies / organizations who may be willing to send people qualified to teach for short term assignment/volunteer.

Primary Issue #2

I have spoken with the five Radiologists extensively concerning training of radiographers in sonography. I have also visited with the radiographers extensively at the two referral facilities in Kigali. There is a perception among roughly half of the radiologists and radiographers that if a radiographer was to obtain training and certification in sonography they would not be allowed to practice in Rwanda given the history of sonography being performed by physicians only. Even though the view is not universal, it is held by a sufficient percentage of individuals as to cast trepidation over those who are considering the effort and expense of obtaining that training which is currently available only outside of Rwanda.

Recommendation for Issue #2

- An appropriate combination of organizations, individuals, medical modalities (obstetrics as well as radiology) and governmental agencies should formally meet and try to reach consensus on the level of practice for Rwandan Sonographers. Those consensus recommendations may then be presented to the Rwandan Ministry of Health for discussion, acceptance and implementation of those credentials and professional practice standards.
- The consensus statement should include:
 - The scope of practice
 - Acceptable methods of certification
 - Minimal qualifications and training
 - A long term plan for training of Sonographers

Primary Issue #3

Sonography is an area of paraprofessional medical care that requires extensive clinical as well as didactic training. That clinical training is widely recognized as needing to be intense, focused and deliberate in its delivery. When looking for clinical sites there are five criteria that must be in place for an appropriate clinical setting:

- The clinical mentor must have a desire and appropriate time to teach the student.
- The administration and management of the clinical site must be supportive of the process and cognizant of the demands that will be placed on the department, resources and individuals involved in the training.
- There must be appropriate credentialing of the persons who will be doing the clinical mentoring
- There must be adequate volume and variety of procedures so that the student will be exposed to an adequate amount of clinical cases.
- It is also widely accepted that it can not be delivered in a setting with a clinical instructor student ratio of greater than 1:1

Given these fundamental standards for clinical education, I conclude that there is no place within the country of Rwanda where appropriate clinical mentoring of sonography students can occur at

this time.

This then significantly impacts the proposal to add sonography training to the curriculum of the radiography students. Radiography students must not be lead to believe that classroom theory without significant clinical experience is sufficient to practice sonography appropriately. With radiography class sizes in the range of 20 students it is inconceivable that any, much less all, of these students would receive anything but cursory clinical knowledge in the practical applications of sonography in Rwanda. It is equally inconceivable that adequate funds would be available for all of these students to be transported to neighboring countries for the extended period of time required for appropriate clinical experience.

Sustainability should also be considered when considering a sonography training program. Investment in time, space, equipment and personnel is not insignificant. If at some point in the future Rwanda develops enough clinical locations that meet the five criteria mentioned above, the question of sustainability must be answered. It is my experience that institutions are not financially willing to have expensive programs such as sonography over the long term with small graduating classes. As evidenced by the faculty/student ratio of the current KHI Medical Imaging department, a reasonable faculty graduate rate is seven to twelve graduates per faculty per year. Using these numbers, there would be between 35 and 60 sonographers within 5 years. With more every year. Even if there were adequate clinical sites for all of these students yearly, there would shortly be inadequate employment opportunities for those completing the program. The employment opportunities could be expanded by adding obstetrics so that not only Radiologists but also Obstetricians could be relieved of the daily grind of performing sonograms. This could help with employment but will not likely solve the issue of 7 to 12 new sonographers in country every year.

Recommendation for Issue #3

- Partnerships with neighboring countries, where there is acceptance of Rwandan educational standards should be actively pursued. I believe that a long range evaluation of cost would find it less expensive to have Rwandan nationals train in neighboring countries. It would also have faster immediate results than trying to implement a program in country with inadequate clinical training facilities and without the burden of trying to sustain a program over the long term.
- If for matters of national pride, a Rwandan school of sonography is desired, long term plans should be made acknowledging
 - The time frame necessary to build up the base of adequate/appropriate clinical sites,
 - The costs associated with small class size during the initial years
 - The costs associated with an academic scanning laboratory.
 - Recognition of probable glutted job market for future trainees who wish to remain in Rwanda.
- A short term solution may be to recruit an expatriot sonographer for training using the curriculum that has been developed during the first couple of years/classes and then re-evaluate the need, and financial resources and options for appropriate clinical rotations.
- It should be remembered that even the addition of sonography to the radiography curriculum still requires appropriate clinical education for anyone hoping to actually practice once they've completed.
- The very real limiting factor, which can not be dismissed is the lack of appropriate clinical education opportunities.

Conclusion

There is an immediate need for initial and ongoing sonography training of those who are currently performing the exams in the district hospitals. This could be easily coordinated through KHI and should be seen as an opportunity for Kigali Health Institute.

There is a need to increase the level of training for the graduating Rwandan physicians. I am ignorant concerning the methods for change or ramifications for affecting this change but nevertheless see it as a very real and practical issue.

There is a need to codify and ratify the professional description of a sonographer within the Rwandan medical delivery system.

The medical staff will be accepting of individuals who are qualified and certified sonographers

There are currently Rwandans who are capable of obtaining the training and appropriate certifications to practice sonography in Rwanda but not within the country.

There is currently not a single acceptable clinical mentoring location within Rwanda.

The question of will, national pride and long term resources must be considered prior to implementing a Rwandan Sonography program. Alternative partnerships and non-standard methods of training may need to be considered if there is a desire for sonographers during the next 5 years.

I am willing to explore the development of partnerships with some of the professional organizations of which I am a long term member (AIUM and/or SDMS). The Ugandan partnership with Thomas Jefferson Ultrasound is one example, the training of Ghananian sonographers by an expatriot sonographer as a one time class is a 2nd model and the partnership with the Canadian Anesthesiologists that may be explored as still another possible model. Further extensive discussions would need to occur to ensure appropriate expectations for each side.

I remain appreciative of your time and consideration of these observations and suggestions.

Sincerely,

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