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## The Global Radiology Gap



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According to the World Health Organization, two-thirds of the world does not have access to radiology services considered basic in most modern hospitals. It is this global radiology gap that now poses a threat to public health.

Irene Githinji is one of the 200 radiologists practising in Kenya, a country of 43 million people. The remote hospital where Githinji works, Mbagathi Hospital, Kenya, did not have access to a CT scan, and if patients could not afford treatment at private facilities closer (ranging from \$60 to \$200) they were forced to make the journey, putting the patient's life at risk. This is similar to the situation in Liberia, where the country currently has only two practising radiologists. The number of radiologists in the four teaching hospitals on Longwood Avenue, Boston outnumber the practising radiologists in the whole of West Africa.

Radiology is a vital part of healthcare, explains Dan Mollura, Radiologist and CEO of RAD-AID. Radiology can highlight complications in patients which may not always be obvious when a patient receives a physical examination. For example, pregnancies cannot be monitored easily without ultrasound; the effectiveness of tuberculosis treatment can be assessed by chest X-Rays, and CT scanners can catch incidences of internal bleeding.

It is not only the lack of equipment which is causing the global radiology gap but also the quality of equipment. In Nepal, it was found that 50% of X-Rays and 40% of ultrasounds were not able to give reliable results. Ryan Schwarz, COO of Possible (an organisation focussed on bringing radiology equipment to rural Nepal) describes how the age of the equipment received can limit the scope of tests in already limited areas of the world.

Schwarz went on to describe that to close the radiology gap, we need to work on non-medical elements which are delaying progress. Electricity, road transport and IT systems are all required to run a radiology department. For example, most hospitals run on three-phase electric power to maintain electricity supply, and the implementation of this in rural areas can bring its challenges. Without a stable electricity supply, this can cause shocks.

The Radiology Readiness Assessments, conducted by RAD-AID to assess problems in an area before launching a radiology programme, highlighted a common challenge in rural areas: staff shortages. Jeffrey Mendel of Partners in Health, explained further how his organisation delivered the first CT scanner to the public University Hospital in Mirebalais (UHM) after the Haitian earthquake in 2010. However, the hospital still does not have the funds to invest in a radiologist.

Telemedicine has been used to overcome this problem, as UHM can send images to a server in Boston where they can be accessed by volunteer radiologists in the form of Electronic Medical Records (EMRs). The success of the scheme has meant that 4000 CT scans were read by volunteers in 2014. However, telemedicine does have its limitations, especially in emergencies where medical action is time-sensitive. Improving the global radiology gap means making long term goals, as Mendel explains, priority needs to be placed on local staff, and to build a healthcare infrastructure we need to build to the point where volunteers are no longer needed to run daily tasks.

The Imaging Global Health Program allows radiologists from rural or deprived areas of the world to train at the Massachusetts General Hospital for three months to further develop their skills. Irene Githinji is a former resident on this programme and gained valuable experience in medical recording keeping as well as imaging techniques. However, Githinji still expresses her frustration when tasked with medical queries in her home country, as knowing the appropriate response but not having the necessary resources can restrict her practice as a radiologist.

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Published on : Thu, 18 Jul 2019