

Assessing the needs of a Ugandan x-ray department

By Andy Creeden, Senior Radiographer, University Hospitals Coventry and Warwickshire NHS Trust.



Introduction

In October 2004 I visited Kumi Hospital in Eastern Uganda on behalf of the Imaging in Developing Countries Special Interest Group (IDCSIG). The aim was to assess the facilities available within the x-ray department, the limitations and constraints on the department and the support needed for the x-ray service to move forward.

Whilst charities and individuals do great work to assist people in developing countries, there have been many examples of well-intentioned donations made to developing countries which have failed to meet the needs of the recipients. Most African hospitals appear to have cupboards, or even rooms,

full of equipment donated by hospitals and charities in the west which, for one reason or another, cannot be used.

By visiting the hospital and finding out what really is needed, be that equipment, training or other assistance, donations of time, money and resources can be best targeted towards improving standards of patient care.

Geography

Uganda lies in central Africa and is known mostly in the UK for its population of mountain gorillas, the tyrannous regime of Idi Amin and the continuing armed conflict with the Lords Resistance Army in the north of the country. It is home to nearly

25 million people.

The majority of Ugandans live in rural villages and make their living from small scale farming. Houses are made from mud and thatch or metal sheets and water for drinking, cooking and washing is collected from boreholes and wells. Most Ugandans have an income of less than \$2 per day, few have access to electricity and less than half the population are able to complete primary school. However, a decade or so of relative political and economic stability has allowed small improvements in the standard of living for many people and with the support of the international community many further improvements can be achieved.



Patients waiting outside the x-ray department.

Not surprisingly, given the country's troubled past and current economic difficulties, many of Uganda's hospitals fall a long way short of the standards we expect in the UK. There are many deserving hospitals in Uganda, and indeed thousands in the developing world that we would like to support. Kumi was

chosen because of its particularly disadvantaged local population, its lack of previous donor involvement and the commitment of the management and staff to improve services.

Kumi hospital was originally a leprosy hospital, but in 1997 became a general hospital

specialising in the care of people with disabilities. The hospital has 290 beds supported by 215 staff (including four doctors, five 'clinical officers' and 45 nurses), two operating theatres, a laboratory, an x-ray department, a dental department, a physiotherapy gym and an orthopaedic workshop which makes splints, callipers and prosthetics.

Kumi is funded on a 'private not for profit' basis whereby some funding is received from the Ugandan government, but most patients are also expected to make a small contribution towards the cost of some consultations, investigations and treatment. Unfortunately, due to the economic situation both these sources of income are extremely limited. This frequently forces the hospital to lower its aspirations from 'quality services for all' to 'some services for all'.

One of the greatest challenges

facing the hospital is the absence of a piped water supply. This supply was destroyed around 15 years ago during the civil war and has not yet been rebuilt. Currently all water for the hospital is carried from a borehole which makes it difficult for staff to maintain a hygienic environment for patients. There are high hopes, however, that the water supply will be restored in the next few years with the help of Australian aid. Kumi's electricity supply is also extremely unreliable, causing frequent power cuts. The hospital has a small generator but it is only capable of supplying the operating theatres.

Despite these difficulties, almost unimaginable in a Western hospital, the staff at Kumi remain remarkably dedicated, hard working and committed to using the limited resources available towards delivering the best patient care possible.

Japanese clinic installs 'Regius' CR system

Konica Minolta has installed the Regius 170 CR system in the newly refurbished Iryo Medical Centre in Hendon, London. This small private medical centre was established in the early 1990s for Japanese expatriot nationals living and working in the London area.

An integral part of the system is the CS-1 controller, which provides the radiographer with control and review of an examination within the area and ensures patient contact throughout.

Libby Anderson, Superintendent Radiographer said: "The Regius dual plate system was selected by the clinic for its small footprint and superior image quality."



Libby Anderson, Superintendent Radiographer, and Ken Hinds, Sales Manager, Konica Minolta.



James Oluka, Radiographer.



James x-raying a patient.

The x-ray department

The x-ray department's workload is relatively small compared to departments in the UK (around two to three thousand patients per year) but nearly all the films show some sort of abnormality.

X-rays are taken using a second-hand floor mounted GE DXS 350 unit which is around

15-20 years old and was donated from the US in 2002. None of the electromagnetic locks work so the tube is held in the correct position with sandbags. In addition, the bulb from the LBD is absent. A number of attempts have been made to replace the bulb but to no avail, and all exposures are made with the collimators fully open.



New equipment would be of enormous benefit to Kumi Hospital.

Obtaining a replacement bulb would reduce unnecessary radiation to the patient and reduce scatter, thereby improving image quality. The examination table has no Potter-Bucky tray and so images of the spine and pelvis are obtained with a stationary grid.

There is no lead screen to protect the staff whilst making

exposures so staff wear a lead apron and stand as far back as the cable on the exposure switch allows. From this position it is not possible to observe the patient whilst the exposure is made and as a result paediatric chests x-rays are often of poor quality.

A home-made darkroom ID marker is used to name films.

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Although this doesn't work as well as commercially available ID markers it does do a surprisingly good job.

Films are processed manually and developed by inspection. Replenisher is not available in Uganda and the hospital budget only allows chemicals to be changed once a month, so developing by time is not possible. As there is no running water at the hospital, films are washed in a standing water bath, which is changed daily.

There is no film dryer so films are hung on a wooden rack and put outside to dry. This works very effectively on sunny days but obviously takes much longer when the weather is cold and wet. The films get quite dirty when there is a lot of dust blowing around.

Film supplies are not reliable and there are often nation-wide shortages of particular film sizes. On these occasions films are often 'borrowed' from neighbouring hospitals or cut down to fit into cassettes.

The x-ray department has two members of staff that take x-rays, a medical records assistant who has been seconded to the x-ray department since it opened in 1973, and a radiographer who trained in Kampala and came to Kumi in 2001. The staff have not had the same learning opportunities as radiographers in the UK, but their skills are adequate given the extremely limited resources available. I made a number of suggestions for small improvements in techniques but I was not able to identify any significant ways in which the equipment that was available could be used better. If improved equipment were installed then further training may well become necessary.

The department has also recently acquired an ultrasound unit. One of the radiographers has attended an eight month sonography training course in Kampala and the charity OPT-IN are making regular visits to provide further 'on the job' training.

One of the existing staff is due to retire and there is an urgent need to find a replacement. Qualified staff are very difficult to recruit in Uganda. The best solution is to sponsor a local person through a radiography diploma in Kampala, which costs around £300 per year over four years. A local person is more likely to return and stay loyal to the hospital.

There is also a need to reduce the number of x-rays performed which do not alter patient management. Whilst this is a global problem, it is a particular problem in an environment of such limited resources. The issue is likely best addressed at the hospital through Continuing Medical Education (CME), which could be facilitated by support from overseas.

Aid required

There is a significant amount of second hand equipment that could be collected in the UK and posted to the hospital at reasonable cost which would benefit Kumi immensely such as:

- A selection of film/screen cassettes;
 - A 24x30cm secondary radiation grid;
 - Film hangers for manual processing;
 - Viewing boxes;
 - A lead apron;
 - Anatomical markers.
- Although costing more, funding might also be sought for larger items of equipment that would greatly enhance the capacity of Kumi's x-ray department;
- A tabletop processor;
 - An examination table;
 - A lead screen;
 - A replacement safelight.

In the longer term a replacement x-ray unit is required. A mobile unit would be particularly suitable for the hospital. As well as allowing radiography on the wards it could act as a useful back-up for the fixed unit and supplement it by allowing horizontal beam

lateral views. A mobile battery powered unit could also be used within the x-ray department during power cuts, helping to maintain the x-ray service without the need for a generator.

Clearly x-ray units are exceptionally expensive and to buy a new one would require an exceptional level of funding, beyond the scope of conventional fundraising. Approaches and applications would therefore need to be made to appropriate grant making bodies and trusts for this kind of project. Radiographers in the UK are well placed to act as advocates in this process.

Acknowledgements

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This article is an abridged version of a more detailed report. The full report can be obtained by emailing idsig@yahoo.co.uk. If you have any suggestions, are able to help in any way, or would like further information on the Imaging in Developing Countries Special Interest Group, please contact Andy Creeden at the email address above.

If you would like information on the Society of Radiographers Overseas Placement Fund, please contact Gill Smith at Head Office, 207 Providence Square, Mill Street, London SE1 2EW. Tel: 020 7740 7203. Email: gills@sor.org.

Ferrania to bring PACS to nine hospitals in North West Wales

The North West Wales NHS Trust has ordered Ferrania LifeWeb PACS equipment as part of their re-equipping programme. The trust consists of nine hospitals and it represents one of the UK's most diverse PACS projects. With many of the hospitals located in remote areas, traditional analogue systems are struggling to cope with the volume of records and images generated because of the number of patients the trust serves. Accessing patient information when required from any one of the hospitals is a time-consuming process.

Ferrania's PACS system will improve efficiency across the trust. Centrally stored digital files will give clinicians and doctors faster access to patient records and images. There are also substantial hidden financial benefits resulting from the time saved.



Colin Heath PACS Manager (far right) and the x-ray team, Ysbyty Gwynedd, Bangor