



NHS Scotland Global Citizenship Conference 2018

Case Study: Equipment donations and Biomedical Engineering Support in Uganda

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What did you do?

- 1. Went to Uganda to provide technical Support to McMaster University and Hamilton Health Science Surgical team, as part of specialised training on laparoscopy surgery for local Surgeons.**



- A. I asked the Clinical lead what I should bring with me.**
- B. A stack system will be ideal:**
 - I. Light source**
 - II. Cameras System**
 - III. Camera**
 - IV. Insufflator**
 - V. Monitor**
 - VI. Accessories.**
- C. Installed, tested, trained the local head of surgery and handed over the equipment.**

2. I visited the hospital Emergency Department: I observed that a defibrillator was plugged to the mains but I could not see any visual indicator. I decided to simulate cardiac arrests using my own defibrillator analyser (simulator).

A. A monophasic Codemaster XL Defibrillator Connected to a Defibrillator analyser

B. Tests Performed

Set Test	Delivered
I. 10J	9J
II. 50J	20J
III. 100J	23J
IV. 200J	27J
V. 360J	50J

C. I informed the Charge nurse of the problem. She told me that it is the only defib. in the department and that she cannot remove it from use. At least it does defibrillate.

D. My colleagues in Canada shipped me the Capacitors and other components I managed to fix it.



On my return:

- *I contacted a defibrillators manufacturing company and requested a donation on behalf of the Uganda hospitals*
- *I received 9 refurbished Bio-phasic Transport defibrillators*
- *I sent them to Uganda with Doctors who returned home from their specialty placement.*



How did you do it?

I requested to conduct a needs assessment for the Biomedical Engineering for Uganda on behalf of (IOP) the charity that support specialised training for Ugandan Graduate Medical Doctors.

Areas looked at:

1. Hospitals

1. Mulago Hospital: Largest Hospital in Uganda
2. Mbarara Hospital: Largest in the region

2. Universities:

1. Makerere University: Affiliated with Mulago Hospital. With Medical school & Biomedical Engineering program.
2. Mbarara University of Science and Technology (MUST). Affiliated with Mbarara Hospital. Biomedical Engineering Program ready to start during this assessment.



4. Execution of Needs assessment recommendations



Based on recommendations:

- Supplied test equipment and simulators to both Hospitals;
- Delivered Biomedical technical training on service and repairs of Medical Equipment and technology;
- Provided follow-up mechanism;
- In the process of bringing a trained Biomed to NHS Tayside to learn about the management of healthcare technology;
- Supplied targeted medical equipment donation based on needs of specific departments, while making sure local technical service is available;
- Both IOP and hospital kept their commitment to supply the team with office and support needed to sustain the department local operations.

Impact?

- Both hospitals now rely on local Biomedical Technicians and Engineers to support their medical technology needs;
- Basic repairs that used to wait for technicians to come from Europe or USA are now fixed in house;
- Patient safety related to the use of medical devices and technology is being taken into account by both clinical and technical teams;
- Doctors from McMaster University and HHS, when on assignment in Uganda, or those returning from their specialist training in Canada, can perform their duties in confidence knowing that there is a local Biomedical support available when needed;
- Greater collaboration between hospitals and Universities in providing Biomedical Engineering students with practical experience and an environment of learning;
- Biomedical Engineering is now recognised by the Ugandan Government as a profession;
- Neighbouring countries are starting to hire some of the technicians that we trained. We hope that they will pass on their knowledge and expertise to their new colleagues;
- Equipment donated will be assessed, acceptance tested and put into service with confidence.

What did you learn?

- There is a need for medical equipment in the developing countries
- Not every equipment is needed in the developing countries. Donation must be tailored to the clinical needs of the recipient
- A large number of donated equipment never been put into use by the recipients. They are collecting dusts and taking much space in hospital corridors. As they are expensive to be disposed.
- Some developing countries have the same technology that we do have. However, when something goes wrong they are not able to fix the problem and continue with patient care
- Training and education must go hand in hand with Medical equipment donation.
- The total cost of this project was less than the cost of one defibrillator. As equipment sent was already depreciated and obsolete from our hospitals. What was priceless was the time I could spent with my family that I donated to something I believed was important and priceless. **Helping others.**
- **Local Biomedical & Clinical Engineers are needed everywhere we intervene to improve healthcare of others.**