The (improved) status of medical equipment in sub-Saharan Africa

Healthcare Technology Management

A. Worm, L. Griffith-Jones, T. Namahungu, H. Chimphepo, P. Soroheyeye

May 11, 2017

Geneva, Switzerland
Table of Content

1. Introduction - THET
2. Setting the scene – data available today
3. Estimation of functional equipment in sub Sahara Africa
4. Estimation of sources of equipment
5. Number of professional associations in sub Sahara Africa
6. Conclusions & recommendations
Tropical Health & Education Trust

- More than 25 years’ commitment to global health/developing the engagement of UK health professionals to work in partnership with counterparts overseas to deliver health worker training and peer-to-peer support.

- >150 Health Partnerships to deliver effective clinical and medical equipment maintenance projects funded by DFID and implemented by THET

- Country programmes in Ethiopia, Myanmar, Somaliland, Tanzania, Uganda and Zambia

- Zambia: supporting NORTEC in creating a sustainable BMET diploma course and medical equipment eco system work (TA at MoH, Prof Association)
### Setting the scene

<table>
<thead>
<tr>
<th>Medical Equipment Status</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>At least 40% of medical equipment is out of service (many studies cite 50-80%)</td>
<td>1 The Lancet Commission: Technologies for Global Health, P. Howitt et al., Aug 2012</td>
</tr>
<tr>
<td>Up to 80% of medical equipment in many sub-Saharan African countries is donated or funded by foreign sources</td>
<td>2 EMRO Technical discussions, “The role of medical devices and equipment in contemporary health care systems and services”, June 2006</td>
</tr>
<tr>
<td>70-90% of donated equipment is never operationalised</td>
<td>3 T. Judd, J. Dyro, and J. Wear, “Advanced health technology management workshop,” in Clinical Engineering Handbook, J. Dyro, Ed. Elsevier, 2004</td>
</tr>
<tr>
<td>Only 19 BME teaching units in sub-Saharan Africa (2000)</td>
<td>4 CHA Medical Surplus Donation Study: How Effective Surplus Donation Can Relieve Human Suffering, April 2011</td>
</tr>
</tbody>
</table>

---

2. EMRO Technical discussions, “The role of medical devices and equipment in contemporary health care systems and services”, June 2006
4. CHA Medical Surplus Donation Study: How Effective Surplus Donation Can Relieve Human Suffering, April 2011
6. IFMBE and WHO country data (2015)
Estimation of functional equipment in sub Sahara Africa

P. Howitt mentions that at least 40% of medical equipment is out of service\(^1\); other studies cite 50-80\(^2\).

<table>
<thead>
<tr>
<th></th>
<th>Rwanda</th>
<th>Malawi</th>
<th>DRC</th>
<th>Benin</th>
</tr>
</thead>
<tbody>
<tr>
<td># hospitals</td>
<td>All 45 district hospitals</td>
<td>All 22 DH 17DH +87HC</td>
<td>3 hospitals in Bukavu region</td>
<td>All hospitals and HCs of 4 out of 11 dept</td>
</tr>
<tr>
<td># equipment</td>
<td>5,430</td>
<td>~20,000</td>
<td>~350</td>
<td>~15,000</td>
</tr>
<tr>
<td>~% functional</td>
<td>67%</td>
<td>85%*</td>
<td>87%</td>
<td>82%</td>
</tr>
</tbody>
</table>

- 37%>10 yrs, 16% 20 yrs (DRC)
- More non-functional cold chain equipment than other equipment (Benin)
- The 30% of equipment that’s out of service is mostly due to equipment being obsolete, difficulties in acquiring spare parts and a lack of skilled (technical) staff.

* based on Northern region
Estimation of equipment sources

- The Clinical Engineering handbook indicates that up to 80% of medical equipment in many sub-Saharan African countries is donated or funded by foreign sources.

- A limited research (questionnaires) with the participation of 6 Francophone and 2 Anglophone ministries of health and shows that an average of 52% of the equipment is donated or (partly) financed with external funds and only 8% concerns second equipment donations (preliminary data, more Anglophone countries to be gathered).

- First preliminary outcome:
  - 100% Procured and financed by MoH: 46%
  - Financed by MoH+support: 36%
  - 2nd hand donations: 8%
  - new donations: 10%
**MEDICAL EQUIPMENT DONATION POLICY SURVEY**

**PARTICIPATING COUNTRIES**
- Benin
- Burkina Faso
- Cameroon
- Ethiopia
- Ghana
- Malawi
- Nigeria
- South Africa
- Uganda
- Botswana
- Burundi
- DR Congo
- Gambia
- Kenya
- Mozambique
- Rwanda
- Tanzania
- Zambia

**DO YOU THINK THAT MED HAS HAD POSITIVE OR NEGATIVE EFFECT IN YOUR COUNTRY?**
- 44% SOMEWHAT POSITIVE
  - “Usually the donation process in our hospital does not involve Biomedical Engineers so the equipment donated [will not have] a durable impact.”
- 39% SOMEWHAT NEGATIVE
  - “Mostly they do not respond to the real needs of the hospital.”

**DOES YOUR COUNTRY HAVE ANY MED POLICY OR GUIDELINES?**
- 44% ACCORDING TO
  - 61% THEY WERE NEVER IMPLEMENTED*
- 50% ACCORDING TO

**HAS YOUR BME ASSOCIATION PLAYED A ROLE IN MED POLICY...**
- CREATION
  - 70% NO
- IMPLEMENTATION
  - 100% NO
- REVIEWING
  - 90% NO

**THINK BME ASSOCIATIONS SHOULD BE INVOLVED IN CREATION AND REVIEW OF MED POLICY**
- 83%

**THINK BME ASSOCIATIONS SHOULD BE INVOLVED IN THE IMPLEMENTATION OF MED POLICY**
- 77%

*“BME associations can play a role during national consultative meetings or creation and review of policies and guidelines. They can also influence policy by providing feedback on implementation challenges and gaps.”

**“We feel that donation, as long as it does not pass through the donation directive, is equivalent to dumping.”**

**18 COUNTRIES**
- 16 BME ASSOCIATIONS FULLY IMPLEMENTED POLICY
- 1 MED POLICY

**MEDICAL EQUIPMENT DONATION**

**MED = Medical Equipment Donation**

*of respondents from countries which have MED policy or guidelines*
Professional associations in sub Sahara Africa (2017)

Until 2015 only 2 professional BME associations were known to IFMBE and WHO.
In 2015 we discovered 16 professional BME associations in sSA and brought them together in a 3.5 day workshop in Johannesburg in Oct 2015. Sponsored by GE-Foundation.

They now take more visible roles in communication with partners and MoH, IFMBE recognises their existence and is creating an Africa working group, WHO communicated with the associations and they’re instrumental in data collection.

Recently added: associations in Mali, Niger, Botswana
ASSESSING THE POTENTIAL: PROFESSIONAL ASSOCIATIONS FOR BIO-MEDS

Workshop Review

At the end of 2015, THET organised a Needs Assessment workshop in Johannesburg for Professional Associations for Bio-medical Engineering professionals in Sub-Saharan Africa.

These Professional Associations have great potential, since the needs related to networking, continuous professional development and advocacy at the international level is needed to advance the profession, retain competent people, and improve healthcare delivery however, these associations have no connection or recognition within and outside of their countries.

The workshop was an opportunity to discuss successes, challenges, and for participants to network with other BMET professionals. The event included training on leadership, running a successful association, financing, action planning, and the value of association standards. It was generously supported by GE Foundation.

NEEDS ASSESSMENT WORKSHOP IDENTIFIED ASSOCIATIONS

**HAVE:**
- A Board
- Annual Meetings
- Mission & Vision

93% 87% 87%

**LACK:**
- Financial Management
- Financial Sustainability
- Strategic Planning

50% 0% 33%

- Membership Structure
- Fee Structures

87% 87%

- Monitoring & Evaluation
- Member Needs & Retention

27% 30%

3.5 DAYS
16 ASSOCIATIONS
3000 BIO-MEDS REPRESENTED

OPPORTUNITIES BASED ON NEEDS ASSESSMENT WORKSHOP


2. Sharing expertise one-to-one, between institutions, through online platforms or webinars.
   a. Financial Management – Recruit an expert such as an accountant to partner with your association or several associations to help you set up a financial management system with a clear budget and audits.
   c. Website – Get together with people in your association and others to find the right people to help you set up a website, present appropriate information, and how to use it effectively.
   d. Monitoring & Evaluation.
   e. Continuous Professional Development. Associations should offer regular training on diverse topics to their members. It's a way to show commitment and value to the members and it enhances the professionalism of the BMET community.
   f. Quality Assurance for BMET training - Associations can play a role in the creation of curricula, and QA of teaching materials for example. They can deliver trainers and be a consulting body for the training institute.
   g. External Relations How to approach the MoH, how to approach funders, the private sector, the interest of collaborating with other professional associations.

3. Connecting to Northern bodies like membership of AAMI, IFMIBE. Associations can get discounted memberships of international bodies for finding resources contacts conferences.

www.thet.org
Conclusions and recommendations

- More functional equipment, less donations, more associations
- Need for better understanding and quantifying the current situation to find ways to leverage the available resources (e.g. human, financial) to maximise the impact of medical equipment in healthcare delivery.
- This is a task for both African nations and partners.
THANK YOU!

More information on our work: www.thet.org/our-work/biomedical-engineering
Or write to anna@worm.nl