IMPROVING THE AVAILABILITY OF MEDICAL DEVICES, THE GHANA EXPERIENCE

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INTRODUCTION

• For medical device(s) to be available at all time for use, it must be:
  – safe for the intended purposes
    • Diagnostic
    • Therapy
    • Prevention
    • Rehabilitation
  – Right
    • Functionally
    • Output
  – Properly maintained
    • Appropriately
    • routinely
  – Effectively managed
    • Vital

• Other important requirement are:
  – Staffing needs are critical
  – Good working environment is key
  – Tools and logistics must be available
  – Maintenance budget critical
## BACKGROUND

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>Total Land Area of Ghana</td>
<td>238,537 Sq Km</td>
</tr>
<tr>
<td>Administrative Regions</td>
<td>10</td>
</tr>
<tr>
<td>Administrative Districts</td>
<td>170</td>
</tr>
<tr>
<td>Population Growth Rate (annual %)</td>
<td>2.1</td>
</tr>
<tr>
<td>GDP (Current US $ bn)</td>
<td>16.7</td>
</tr>
<tr>
<td>GDP per capita (current US$)</td>
<td>713</td>
</tr>
<tr>
<td>GDP growth (annual %)</td>
<td>7.3</td>
</tr>
<tr>
<td>Total Expenditure on Health (THE % of GDP)</td>
<td>7.8</td>
</tr>
<tr>
<td>Life Expectancy at Birth, Total (years)</td>
<td>56.6</td>
</tr>
<tr>
<td>Infant Mortality Rate (per 1000 live births)</td>
<td>51.0</td>
</tr>
<tr>
<td>Literacy Rate, Female Youth (% females ages 15-49)</td>
<td>77.9</td>
</tr>
<tr>
<td>Prevalence of HIV, total (% of population ages 15-49)</td>
<td>1.9</td>
</tr>
</tbody>
</table>

Source: World Development Indicators & Ghana Statistical Service (2009)
## BACKGROUND

### SUMMARY OF HEALTH FACILITIES

**BY LEVEL**

- **TEACHING** – 3
- **REGIONAL** – 9
- **DISTRICT HOSPITALS** – 336
- **PSYCHIATRIC** – 3
- **POLYCLINICS** – 10
- **HEALTH CENTERS & CLINICS** – 1975
- **MATERNITY HOMES** – 389
- **CHPS** – 287

**BY OWNERSHIP**

- **GOVERNMENT** – 1470
- **CHAG** – 211
- **ISLAMIC** – 18
- **PRIVATE** – 1225
- **QUASI GOVT** – 87

*Source – CHIM/PPME-GHS 2007*

<table>
<thead>
<tr>
<th>REGION</th>
<th>NO OF FACILITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASHANTI</td>
<td>549</td>
</tr>
<tr>
<td>BRONG – AHAFO</td>
<td>228</td>
</tr>
<tr>
<td>CENTRAL</td>
<td>241</td>
</tr>
<tr>
<td>EASTERN</td>
<td>372</td>
</tr>
<tr>
<td>GREATER ACCRA</td>
<td>466</td>
</tr>
<tr>
<td>NORTHERN</td>
<td>188</td>
</tr>
<tr>
<td>UPPER EAST</td>
<td>144</td>
</tr>
<tr>
<td>UPPER WEST</td>
<td>134</td>
</tr>
<tr>
<td>VOLTA</td>
<td>296</td>
</tr>
<tr>
<td>WESTERN</td>
<td>392</td>
</tr>
<tr>
<td><strong>GRAND TOTAL</strong></td>
<td><strong>3011</strong></td>
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# BACKGROUND

<table>
<thead>
<tr>
<th>ESTABLISHED HTUs</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>National level</td>
<td>2</td>
</tr>
<tr>
<td>Regional level</td>
<td>10</td>
</tr>
<tr>
<td>District Hospitals</td>
<td>8</td>
</tr>
<tr>
<td>Tertiary/Teaching hospitals</td>
<td>3</td>
</tr>
<tr>
<td>Regional hospitals</td>
<td>5</td>
</tr>
<tr>
<td>Presbyterian HTU</td>
<td>1</td>
</tr>
<tr>
<td>Catholic hospital Engineering</td>
<td>1</td>
</tr>
<tr>
<td>Private companies</td>
<td></td>
</tr>
</tbody>
</table>
BACKGROUND

• HTUs & TECHNICAL STAFF INFORMATION
  – National level unit – headed by Deputy Directors
  – Regional level HTUs - headed by Regional Equipment/Clinical Engineering Managers
  – Total number of Engineering staff
    • Biomedical Engineers – 4
    • Clinical Engineering Managers - 11
    • Technologist – 15
    • Technicians – 20
EVOLUTION OF HTUs IN GHANA

• 1930s Public Works Department (PWD), Ghana water works, Electricity corporation of Ghana, State Transport corporation were in charge of maintenance services for public facilities including Korle - Bu Hospital in Accra, now a Teaching Hospital (KBTH).

• 1950s, Hospital Maintenance Engineering Department established in Komfo Teaching Anokye Hospital

• In 1960s, Maintenance Department established in KBTH

• 1970’s, Christian Health Association of Ghana (CHAG)

• 1980 the Catholic Diocese of Kumasi started the Hospital Engineering Services project
EVOLUTION OF HTUs IN GHANA

• In mid 1980s under the Economic Recovery Programme (ERP)- started the First Health & population project- (WORLD BANK, BRITISH ODA, MoH)

• By 1990 – 1992 the two teaching hospitals had rehabilitated their engineering Departments (Pollock and Porter, 1990).

• By 1994 a national unit(Biomedical Engineering Unit) established for the management of equipment within MOH
EVOLUTION OF HTUs IN GHANA

• By 1995, eight Regional Equipment management units have been established
• All ten Regions established HTUs by 2004
• In 2003 the Ghana Health Service and Teaching Hospitals established as implementing agencies by Parliamentary Act of 1996.
• The Clinical Engineering Department was established in 2004 to support the Ghana Health Service
SITUATION IN GHANA
(1940s – 1990s)

• The maintenance units of the two Teaching Hospitals (KBTH & KATH) offered engineering services to all MoH facilities in Ghana

• However technology advanced tremendously
  • Staff of these hospitals could not cope
    – Most institutions relied on the basic skills of artisans to handle complex electro medical equipment
  • State of the equipment was in total disrepair
  • Inventory of equipment was non existence
  • Basic equipment were not available
Advent of HTM in Ghana (1990-2010)

• HTUs in the two teaching hospitals have seen phase lift.

• Workshops rehabilitated, furnished and equipped
  – Provision of workshop tools/vehicles/library

• Staff situation tremendously improved
  – Technical and managerial training offered to all category of staff

• Re-equipping of health facilities instituted

• Equipment Management and Engineering training
  – Majority of engineering staff trained in the management of medical devices as well as maintenance
CURRENT SITUATION

• Technical units have been established at
  – MoH
  – GHS, HQ
  – Regional Health Directorates (RHD) levels
  – Regional hospitals
  – District hospitals (selected)
  – Others include the CHAG Technical Units
  – Manufacturers’ representatives, subsidiaries, distributors, suppliers

• Equipment management training offered to
  – Facility Managers
  – Equipment users
  – Clinicians
  – Finance managers
  – District managers
## CURRENT SITUATION

Biomedical Engineering Training Facilities

<table>
<thead>
<tr>
<th>INSTITUTION</th>
<th>PROGRAM OFFERED</th>
<th>YEAR TRAINING STARTED</th>
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<tbody>
<tr>
<td>KNUST/GTZ</td>
<td>BIOENGINEERING</td>
<td>2002</td>
</tr>
<tr>
<td>UNIVERSITY OF GHANA</td>
<td>BIOENGINEERING</td>
<td>2004</td>
</tr>
<tr>
<td>ALL NATION UNIVERSITY</td>
<td>BIOMEDICAL ENGINEERING</td>
<td>2006</td>
</tr>
<tr>
<td>VALLEY VIEW UNIVERSITY</td>
<td>MET(modular program)</td>
<td>1998</td>
</tr>
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</table>
EQUIPMENT SITUATION

• Equipment performance
  – In 1989 performance was 64.3%
  – By 2006, the performance rose up to 88.6%
    (CED, 2006 support visit report)

• There plans to update the current performance
IMPACT

- Improved management of equipment acquisition processes
  - Rational procurement of equipment
  - Value for money for investments made
- Safe, rational use and improved care of equipment
- Improved managerial & maintenance skills
- Increased collaboration with private sector organisation
- Increased availability of equipment
- Communications/linkages/net working established
- Quality of care improved
CHALLENGES

- No system for regulation
- Clear uniform and evidence based policy & decision making
- Information system including regular auditing for management of medical devices
- Absence or little budgetary support for maintenance
- Increased equipment user faults
- Late fault reporting
- Difficulty in assessing spare-parts
- Difficulty in standardizing on trusted make & models
STRATEGIES ADOPTED

- Seminars and workshops from time to time to refresh managers on the best practices in medical equipment management
- Strengthening problems reporting system for equipment malfunction
- Advocate for the establishment of maintenance revolving fund
- Identifying specific training needs and organise specific training for them
- Out sourcing of maintenance contracts for specific equipment
STRATEGIES

- Engaging managers of health institutions to allocate funds for maintenance of medical equipment
- Cannibalization of equipment
- Engaging decision makers to support HCT policy development and implementation
LESSONS LEARNT

• Planning and commitment play a crucial role improving availability of medical devices
• Manage all resources at your disposal prudently
• Teamwork is a key to success
• Collaboration with other organisation not only in the health sector but other relevant sectors
• Continuous education is a good platform for increasing the knowledge base and long term capacity building
  – High and rapid turnover of staff(managerial, technical & users
WAYFORWARD

• Work towards the establishment of HTM policy for Ghana
• Organise Stakeholders meeting on innovative ways funding the maintenance of medical devices
• Improve staff knowledge on modern trends in maintenance and management
• Establish networks for information update on medical devices as well as links for sourcing spare parts
CONCLUSION AND RECOMMENDATIONS

• Institutionalising HT systems in Ghana have impacted positively on the health delivery systems by improving the availability of medical devices.

• Despite the achievement and success made, there is still more room for improvement.

• There is the need to establish evidence based HT policy to strengthened the management and maintenance systems for medical devices.

• Political Will as well as commitment from decision makers (irrespective of Government of the day).

• Establishment of HT units require highly trained professionals with analytical skills, not artisans.
ACKNOWLEDGEMENT

• God/Allah in our presence
• GHS/MOH – GHANA
• WHO
• All those individuals who assisted me in diverse ways
• Website: www.ghanahealthservice.org and www.moh-ghana.org
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