



MEDICAL EQUIPMENT PROCUREMENT
PRACTICE AND EQUIPMENT MAINTENANCE
MISMATCH:
THE CASE OF SERVICE CONTRACT IN PUBLIC
HOSPITALS IN GHANA

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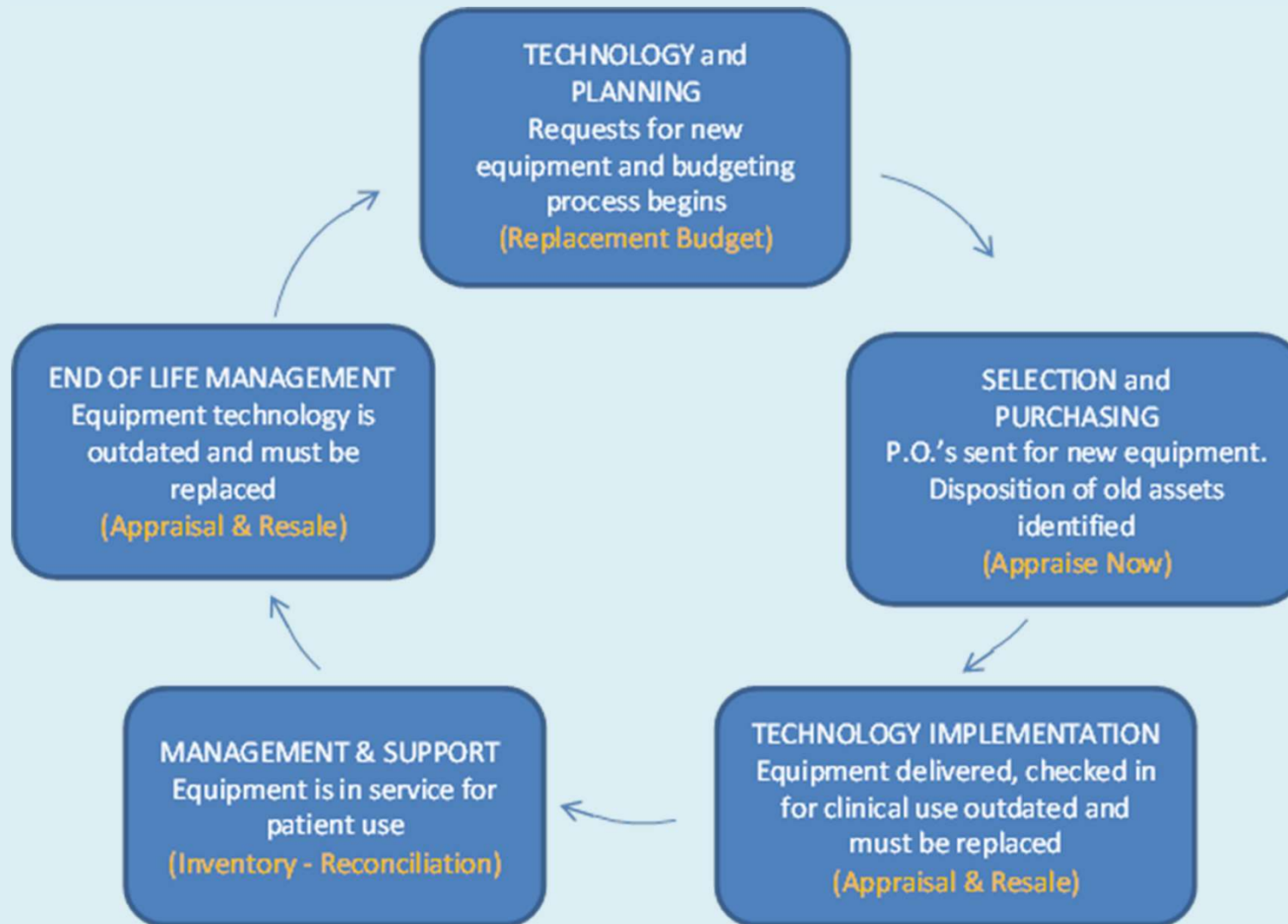
INTRODUCTION



- Health service delivery is predicated upon the availability, appropriateness, affordability and acceptability of medical devices
- About 40% and 70% of medical devices/equipment in low resource settings are broken, unused or unfit for purposes (Diaconu et al, 2017)
- In Ghana, it is common to hear that medical equipment like X-ray, CT Scan or MRI in the public hospitals are not functional.
- Patients are denied access to healthcare due to breakdown of medical equipment
- Improper procurement plan has been cited as one of the major causes of medical equipment breakdown or service unavailability in Ghana (Boatema, 2017).

- Medical equipment management decisions are normally taken during procurement
- Procurement decisions must be rightly considered to support all aspects of the equipment life-cycle
- What informs medical equipment procurement decisions and award of service contracts
- Does it really support good equipment maintenance management strategies to equipment availability and sustainability?

HEALTH TECHNOLOGY LIFE-CYCLE



MEDICAL EQUIPMENT PROCUREMENT PRACTICE





The Public Procurement Act 663

Act applies to:

- Procurement of Goods, Works and Services financed in whole or in part from public funds
- Disposal of public stores and equipment
- Procurement financed by funds or loans taken by Government of Ghana, including foreign aids and grants

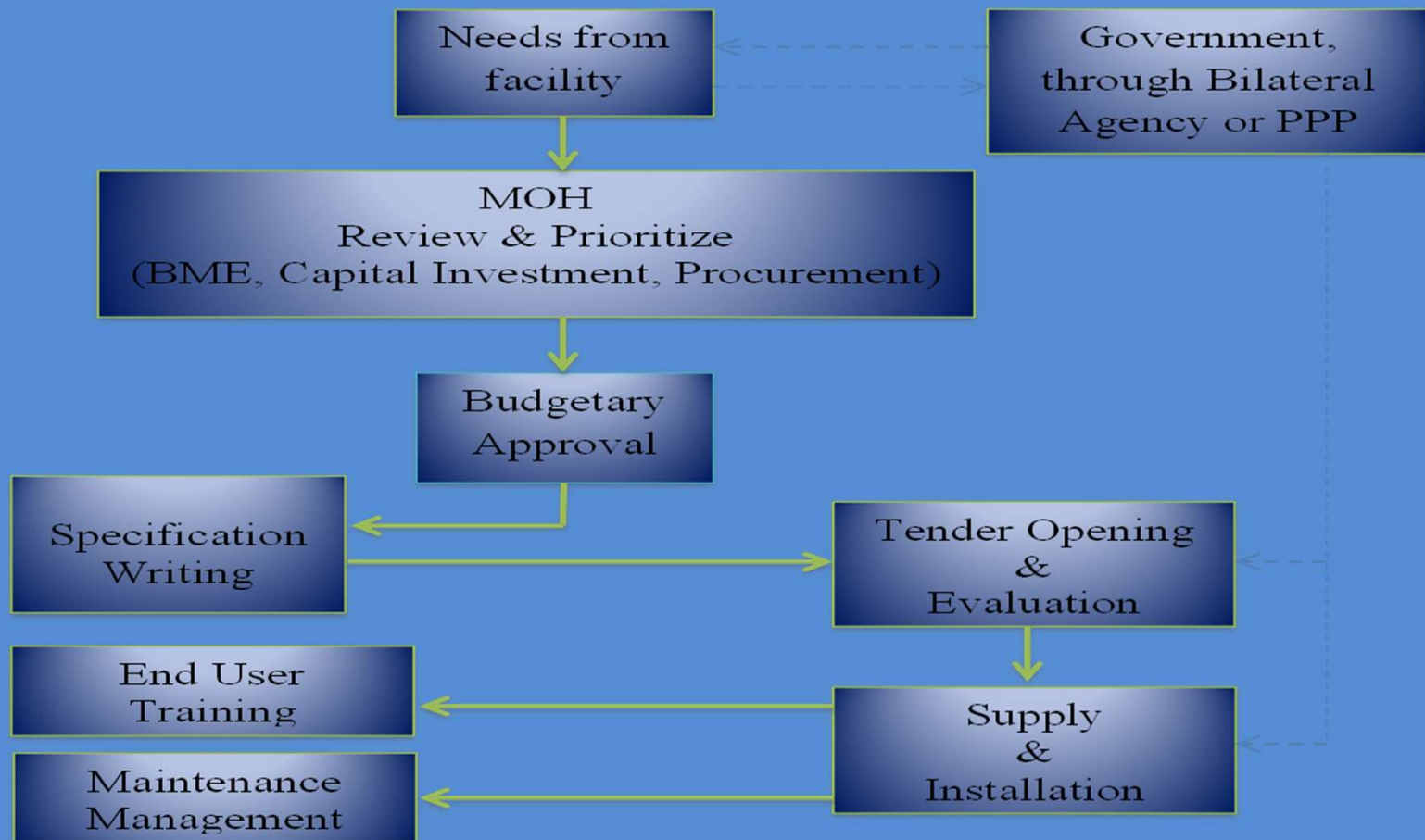
Exemptions:

- Where the Minister of Finance decides that it is in the national interest to use a different procedure.
- Where a loan or funding agreement specifies alternative procedures.

Public Procurement Process

- Identifying Sources Funding
- Identifying Sources Funding
- Needs Assessment and Planning
- Annual Estimates and Budgeting
- Tendering
 - Identify Sources and Inviting Offers
 - Evaluating Offers
 - Seeking for Concurrent Approvals;
 - Awarding and Managing Contracts

Capital Intensive Medical equipment procurement workflow



- REVIEW AND PRIORITIZATION STAGE
 - TECHNOLOGY AND NEEDS ASSESSMENT
 - To assess the real health benefit of the device to ensure it meet the identified health needs
 - BUDGET AND FINANCING
 - Capital Investment Management Unit leads the budget preparation and identify sources of financing
- BUDGETARY APPROVAL
 - Approval is given by parliament through the Ministry of Finance
- SPECIFICATION
 - Market research
 - Technical requirement
 - Quality (ISO, IEC, etc.)

MEDICAL EQUIPMENT MAINTENANCE MANAGEMENT



- **Maintenance** is a risk management practice used to maximise production and minimise loss and waste

- **Strategic maintenance** decision making involves selecting the right care and **repair** methodologies that maximise **equipment** life and performance for the least cost to the user.

- Successful maintenance management strategy depends on understanding
 - Why equipment fails?
 - How equipment fails?
 - When equipment fails?

MEDICAL EQUIPMENT MAINTENANCE MANAGEMENT



	Manufacturer Service Contract	3rd Party/ISO Service Contract	Maintenance Insurance	Hospital Clinical Engineering Service
Advantages	Simple to set up; minimal paperwork; upgrades, e.g. software, can be built in; perception of preferred customer status	Lower costs on hourly basis and typically closer to hospital improving response time; Expertise may be good as many service techs ex-manufacturer	Multiple devices can be covered consolidating risk and reducing costs; flexibility improves as hospital determines who will provide direct service	Lowest labor costs; fastest response; have hospitals interest in mind; Vendor partnerships for first look contract reduction
Disadvantages	Most expensive option; complex contract language; exclusions; limited documentation; many contracts to negotiate and manage; no flexibility	Manufacturers may not support as ISO are competition; parts, documentation, etc.	Manufacturer's threaten hospitals with poor service; a good insurance manager is required to reduce costs.	Expertise may be limited or rarely used as many other equipment types supported; Training costs may be high

SURVEY



- The study was conducted to assess the procurement practice and management of service contracts on medical imaging equipment (X-rays, MRI, CT Scan).
- Structured interviews and questionnaire was administered to BMETs who play a significant role in medical equipment management at Teaching Hospitals and Regional Health Directorates for data collection.
- 10 Regional Equipment Managers and Heads of BME Units in 3 Teaching Hospitals participated in the survey
- Know the prayer involve in procurement and understand whether service contract decisions are based on strategies for effective maintenance



FINDINGS



- Warranty Service Management (Good Practice)
 - Supplier/third party service provider prepare PPM schedule
 - In-house BMETs reminds the service contractor when a scheduled maintenance is due
 - The resident BMETs sometimes supervise and verify a scheduled maintenance performed by service contractors

- Challenges
 - Post Warranty
 - Supply of spare parts and spare parts cost (monopoly)
 - Contract details are not easily accessible by In-house BMETs
 - Manufacturer's after sales service resources cannot be directly accessed by In-house BMETs
 - Little or no access for In-house BMETs to perform first-line service

Challenges to equipment maintenance management

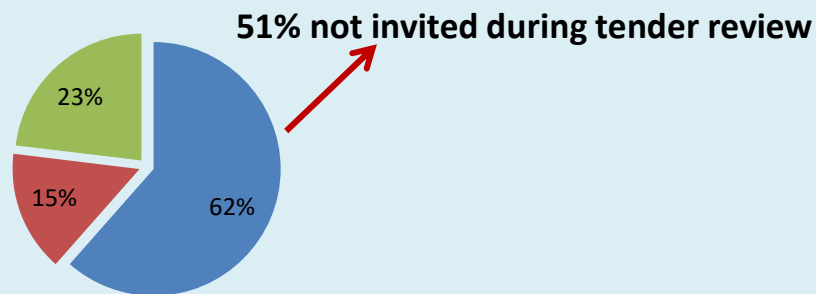


- **The exemptions in the PPA, Act 663 breeds political interference**
 - Equipment are procured without considering proper maintenance management strategies to support the equipment life-cycle
 - Details in the service contracts are not made known made known to In-house BMETs
 - Supplier secure service contract and outsource to third party agents
 - Medical equipment are sometimes procured and installed without the involvement of In-house BMETs
- **Difficulties in managing service contract**
 - In-house BMETs have little or no details of the service contract
 - In-house BMETs not well resourced to manage contracts
 - Lack of coordination in managing third party contract
 - Delay in repair of broken down equipment attributed to high cost of spare parts

- Stakeholders involve in procurement process include BMEs, Doctors, Admins, Procurement officers
- 77% agree that procurement decisions National when facility needs raised
- About BMEs 61.5% do not play any role in the procurement process
- About 15.4% indicated they are writing technical specifications.

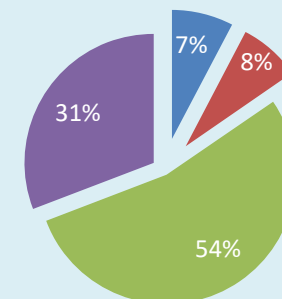
BMEs Involvement in Procurement

■ No Role ■ Specification ■ Specification and Tender Review



Quality considered 2nd to Pricing

■ Disagree ■ Neutral ■ Agree ■ Strongly Agree

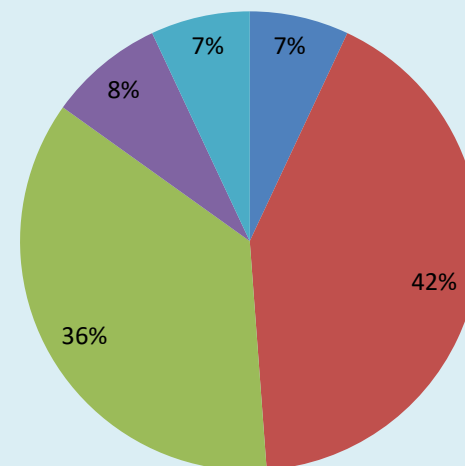


Quality indicators

- Timeliness
- Responsiveness to service call
- Equipment service availability
- Reliability
- Credibility
- Effective communication
- Equipment breakdown rate

Maintenance Contract Service Quality

■ Poor ■ Fair ■ Good ■ Very Good ■ Excellent





Chi-square test of Association

	Working Strategies for Effective Management of Service Contracts		
	Test Statistics	Degree of Freedom	P-value
Medical Equipment Maintenance Contract			
BMEs have access to service contract	9.630	6	0.141
Coordination between BMEs and Service Contractors	12.381	9	0.193
Maintenance by manufacturer representatives and Third party agents	12.519	6	0.051
Capacity building for in-house BMEs	9.840	6	0.132
BMEs given adequate training to provide first-line support	3.539	4	0.472
Third party quality document and HR capacity assessed	9.100	6	0.168

The P-values show there is between the award of service contract and maintenance strategies

CONCLUSION



- BME involvement
- Coordination
- Capacity building
- Compatibility
 - Cost saving
 - Sustainability



Thank You

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