

REPORT OF THE DIRECTOR OF AUDIT

PROCUREMENT OF MEDICAL EQUIPMENT

Ministry of Health & Quality of Life

CONTENTS

	Page
EXECUTIVE SUMMARY	3
CHAPTER ONE: INTRODUCTION	
1.1 <u>Performance Auditing in Mauritius</u>	6
1.2 <u>Audit Motivation</u>	6
1.3 <u>Scope of Audit</u>	6
1.4 <u>Audit Objective</u>	6
1.5 <u>Methodology</u>	7
CHAPTER TWO: THE CURRENT PROCUREMENT SYSTEM FOR MEDICAL EQUIPMENT	
2.1 <u>Introduction</u>	8
2.2 <u>Overview of current Health Services</u>	8
2.3 <u>Management</u>	8
2.4 <u>The Organisation Structure of the Procurement Section</u>	9
2.5 <u>Procurement of ME at Regional Hospitals</u>	9
2.6 <u>Importance of ME</u>	9
2.7 <u>ME Procurement System</u>	9
CHAPTER THREE: FINDINGS	
3.1 <u>Planning</u>	13
3.2 <u>Execution</u>	17
3.3 <u>Other Issues</u>	18
CHAPTER FOUR: CONCLUSIONS	21
CHAPTER FIVE: RECOMMENDATIONS	22
APPENDIX	
I <u>Time Taken for Procurement Process</u>	29

ABBREVIATIONS AND ACRONYMS

BEC	Bid Evaluation Committee
CPB	Central Procurement Board
DTC	Departmental Tender Committee
EC	Equipment Committee
ESD	Energy Services Division
HO	Head Office
ME	Medical Equipment
MEMS	Medical Equipment Management Systems
MOHQL	Ministry of Health & Quality of Life
PU	Procurement Unit
RHD	Regional Health Directors

EXECUTIVE SUMMARY

This performance audit report examines the efficiency and effectiveness of the procurement of medical equipment (ME) at the Head Office (HO) of the Ministry of Health & Quality of Life (MOHQL). The aim is to identify weaknesses therein and to suggest possible recommendations to enhance it. The procurement processes for ME start from needs assessment up to commissioning.

It is crucial for hospitals to ensure that the ME needed to deliver patient care is available as and when required and that this equipment is used as efficiently and effectively as possible. The Ministry needs mechanisms to ensure that ME is acquired on the basis of assessed and prioritized need and those decisions on ME acquisition and replacement is made on the basis of complete and reliable information. Over the last five years MOHQL has acquired ME worth some Rs 500 million. ME is also received as donations by foreign donors.

Key Findings

- Needs assessment was not done based on complete and up to date inventory. There was no information system to ascertain the completeness of donated ME on inventory: A sample of donated ME from foreign donors revealed that 75 per cent was not posted to the inventory list. ME was not properly safeguarded as asset descriptions on inventory lists were not standardised and the conduct of physical inspections was infrequent. Further, inventory lists were kept unit-wise and were not consolidated at the HO. In the absence of appropriate equipment information, acquisition and replacement decisions were made in an unstructured manner. It was also noted that in many cases, justification for purchase and the correct estimated costs of ME was not given by the regional hospitals.
- No time targets have been set for equipment procurement exercises and no management information is generated on the time frame and targets. The length of the procurement process for ME from issue of tenders up to commissioning took on average seven months. The implication was that the commitments for one year were rolled over to the next year. For example, total payments for the period July to December 2009 amounting to Rs 57.2 million included payments of some Rs 49.6 million for previous years while payments for the year ended 31 December 2010 of Rs 164.2 million included payments of Rs 63.2 million for previous years.
- Technical specifications are prepared by the Medical Consultants of the respective regional hospitals after the priority list is drawn. Vetting of the specifications is done by a team comprising representatives of Biomedical Engineering Unit, Energy Services Division (ESD) and Surgical Technologists. There is only one Biomedical Engineer and he cannot oversee the prioritisation of equipment at all hospitals and health delivery points.

- There has been no formal guidance issued to the staff involved in the preparation of specifications at the Ministry to improve their skills in drafting ME specifications. No comprehensive library of generic equipment specifications exists. The lack of technical knowledge for ME specifications is detrimental to securing quality and safety of ME. Case files demonstrated lack of robustness of technical specifications and the quality of product information as evidenced by numerous changes in initial tender specifications and the amount of time spent to clarify technical issues with suppliers at evaluation stage.

Conclusion

The present procurement system needs to be reviewed and the weaknesses identified have to be attended so that less time is taken from request for purchase stage to delivery and commissioning stage. There is a need to set up a central equipment information unit at the Head Office and the regional hospitals involving the use of ICT to link them. Equipment information should be captured in the central equipment database as soon as acceptance checks for newly purchased or donated equipment are completed. This will improve asset management practices and prevent misappropriation of ME.

The set up of a procurement monitoring system would deal with the identification of milestone dates in the procurement cycle so that delays can be identified and addressed. Guidance is needed to reengineer the specifications setting and evaluation processes. Further, the Ministry should decentralize procurement of ME.

Recommendations

- The current system of needs assessment and prioritization should be reviewed. The EC needs to consider the equipment requirements in the light of the actual inventory of equipment in working order held by the MOHQL prior to prioritizing the equipment for purchase. In order to decide on its purchasing requirements effectively, the Ministry should have sufficient data which will help in understanding the present equipment situation. It is helpful for the Ministry to keeping an up-to-date equipment inventory to help in the analysis of its equipment situation effectively.
- The EC should be provided with background information on the current and future demands of the user department and any changes to the nature, type of ME that may be required to meet those future demands. It should also include information on activity levels, demand, utilization, patient profile, types of procedures, waiting time to access the ME, and the relative importance of the department to the health service and the delivery of health services more broadly.
- MOHQL should ensure that each RPPC submits a list of ME to be procured, together with the best estimated costs, before the start of the financial year so that the acquisitions for the current year starts on time, thus preventing payments rolling over to the next financial year. Thus, service delivery would be enhanced if the right equipment is available at the right time.

- A review of the existing equipment should be carried out in view of determining whether the performance of these assets is adequate to support the service delivery strategy or if the equipment is no longer required or superseded by changes in technology or changes in clinical practice.
- The Ministry needs to define proper procedures for the acceptance and commissioning process. Milestone acceptance tests should be identified and a standard form should be designed. The commissioning process needs to prove beyond doubt that the ME has undergone strict acceptance testing activities before being finally accepted as valid acquisitions. The ministry should ensure that the commissioning of ME is done shortly after delivery.

CHAPTER ONE

INTRODUCTION

1.1 Performance Auditing in Mauritius

Performance auditing was adopted and incorporated into Government auditing at the Twelfth International Congress of Supreme Audit Institutions (INCOSAI), an organ of the International Organisations of Supreme Audit Institutions (INTOSAI). INTOSAI is the umbrella organisation for the government audit community. It is an autonomous organisation with special consultative status with the Economic and Social Council (ECOSOC) of the United Nations. Performance auditing aims at promoting economy, efficiency, and effectiveness in the management of public resources. It examines how well public operations have been performed, that is, to what extent they have produced the intended results and effects.

1.2 Audit Motivation

Several adverse press and audit reports have in the past highlighted issues relating to the procurement, use and maintenance of ME and their effect on the smooth running of the service. The ministry has significantly invested in the acquisition of ME to improve its health care service. Over the last five years, some Rs 500 million were spent on the purchase of ME.

In view of the commitment of Government to improve the health and quality of life of the citizens, and the high investment involved in the acquisition of the same have prompted the National Audit Office to carry out this performance audit.

1.3 Scope of Audit

This audit focussed on the current procurement process for acquiring ME at the MOHQL, starting from needs assessment till commissioning. The procurement system for acquisitions of ME at the HO during the period 1 July 2008 to 31 December 2011 were analysed to establish whether they were operating efficiently and effectively. Our examination of ME covered both the most costly items of equipment e.g. Magnetic Resonance Imaging Systems which perform complex diagnostic and treatment functions and are expensive to acquire, and the less costly but essential items used in nearly all hospitals e.g. infusion pumps and ventilators.

1.4 Audit Objective

The audit objective was to assess the efficiency and effectiveness of the present procurement of Medical Equipment at the Head Office.

1.5 Methodology

1.5.1 Interviews

The audit was mainly conducted at the HO of the MOHQL. Interviews were carried out with senior staff of the ministry including those involved in the procurement of ME. The purpose was to have a better understanding of the system and procedures in place.

1.5.2 Site Visits

Two regional hospitals were visited namely, Sir Seewoosagur Ramgoolam North and the Victoria Hospitals. During the visits, semi structured interviews were carried out with the respective Regional Health Directors so as to confirm their understanding of the procedures and systems relating to the annual request of ME.

1.5.3 Literature

Review of literature on the practices in other countries. The current practice at the ministry was compared with International Standards/ Overseas Health Institutions/ Regulatory and Surveillance Bodies to identify areas for improvements.

1.5.4 Survey Questionnaires

Survey questionnaires were designed and used to assess the views on the procurement process at the MOHQL. Survey of sampled ME purchased for the five regional hospitals was carried out to assess equipment usage, performance, safety & care in handling and storage.

1.5.5 Sampling

The acquisition of ME at the five regional hospitals and the Central Laboratory were examined. The Area Health Centres, Community Health Centres and Medi- Clinics were excluded as their direct acquisitions of ME are not material both in terms of quantity and value. Also, the assignment did not cover procurement at the Medical Disposables, Cardiac and Non-Medical units and at Rodrigues.

1.5.6 Document review

Information gathering also involved review of the following documents: The tender and order files, the Public Procurement Office guidance on procurement and contracts.

1.5.7 Data Analysis

The analysis covered payments effected for the acquisition of ME from Treasury Accounting System.

CHAPTER TWO

THE CURRENT PROCUREMENT SYSTEM OF MEDICAL EQUIPMENT

2.1 Introduction

Government places health at the core of its socio-economic development agenda. As a result of this policy Mauritius provides state health services throughout the country free at the point of use to all its 1.3 million people. Since independence, all Governments have maintained a sustainable provision of free health care and services to the population.

2.2 Overview of the current Health Services

The Ministry operates a regionalised system of health services with five regional hospitals and three district hospitals delivering curative health services with separate arrangements for Rodrigues. The regional hospitals also provide general and specialised surgery, gynaecology and obstetrics and intensive care services. Separate specialist hospitals include a mental hospital and an eye hospital, an Ear, Nose and Throat hospital and the Cardiac Centre. The Poudre D'Or hospital deals with cases of pulmonary tuberculosis. There is also one Central Health Laboratory (CHL).

There are also 23 Area Health Centres (AHCs), two Medi-clinics (MCs), and a Community Hospital (CH) spread over the whole country. The AHCs/MCs/CH is linked to 114 Community Health Centres, spread across the regions, and they provide health education, family planning and primary health care diagnostic and treatment services.

2.3 Management

Each regional hospital has its own Health Advisory Board to advise on the health needs of the region, effectiveness and efficiency of services and consumer matters. The management of the regional hospitals is the responsibility of the Regional Health Directors (RHD's) who have to oversee the day to day work of the regions under their decentralized control, including the hospitals and the community health services. MOHQL is responsible for overall policy, planning and management, resource allocation and regulation, together with parliamentary and international matters.

2.4 The Medical Equipment Unit at the HO

MOHQL has a Medical Equipment Unit to deal with the procurement of high tech and ME whose total value exceeds Rs 100,000 per order, while those below this amount are dealt with at regional hospital levels. Other responsibilities of the ME Unit include:

- Preparation of Bidding Documents
- Selection of appropriate procurement method
- Issue notice for Invitation to Bid
- Drafting of letters of award
- Follow-up of contracts with suppliers

2.5 Procurement of ME at Regional Hospitals

Each regional hospital has a Regional Procurement Planning Committee (RPPC) chaired by its respective RHDs and comprising staff from procurement, finance and user departments. The regional hospitals have their own Regional Tender Committee. The five regional hospitals are authorised to purchase minor ME e.g. pulse oximeter, baby incubators, blood-gas analysis, defibrillators, and ventilators, not exceeding the total value of Rs 100,000 per order and spare parts regarding the repair and maintenance of ME at hospital level not exceeding the total cost of rupees one million.

2.6 Importance of ME in the delivery of health services

ME is essential to patient care. Ensuring that the right piece of ME is available in the right place at the right time is vital. Failing to ensure that ME is available and used properly is increasingly likely to result in poorer patient care and extra costs through litigation. This means that regional hospitals need to have adequate systems in place to manage their ME.

It is also important to achieve value for money in the use of ME, since the resources involved are substantial. Figures from the Accountant General Report show that over the past five years, MOHQL has acquired ME exceeding the value of Rs 500 million.

ME is wide-ranging and complex. Some items of equipment are high in cost but low in volume, such as magnetic resonance imaging (MRI) scanners; while others, such as infusion pumps and ventilators are low cost but high volume.

2.7 Medical Equipment procurement system at the HO

MOHQL procures ME centrally for new services, newly formed units and for the replacement of existing old, obsolete and non functional ME. ME is also purchased on emergency grounds to cater for situations involving sudden breakdowns of ME and major epidemics.

2.7.1 Needs Assessment

The Ministry has an Equipment Committee (EC) chaired by a Director-Health Services and comprises staff from the Procurement and Finance sections. The EC is an intermediate committee between the Departmental Tender Committee (DTC) and the Bid Evaluation Committee (BEC). The EC's role is to act as facilitator to both the DTC and the BEC and clear any technical ambiguity. However, the Director- Health Services, apart from chairing the EC is also responsible for Planning and Equipment.

Every year, the Chairperson of the EC requests the regional hospitals and the CHL to submit their annual requests of ME at least two months before the start of the new Financial Year. Depending on the approved budget, the lists are reviewed by the EC which holds consultative meetings with the RHDs. A priority list of ME to be purchased for the year is then finalized and approved. This list is subject to changes as and when the health priorities change or when emergency purchases crop up during the year. The criteria used to determine priority includes degree of urgency of the ME, frequency of breakdowns for ME which need replacement and the age of the ME

The Regional Procurement Planning Committee (RPPC) at each regional hospital is responsible to examine the annual ME requests from each user department of the region and then to submit the list to the DHS Planning and Equipment. Other requests for ME from top management and other departments not falling under the regional hospitals are also submitted DHS Planning and Equipment

The user departments have to justify their requests for ME by addressing a number of criteria including utilisation, number of patients treated and downtime. Additionally, the technical specifications which, are prepared by the Medical Consultants of the respective regional hospitals along with the estimated costs have also to be submitted. Vetting of the specifications is done by a team comprising representatives of Biomedical Engineering Unit, Energy Services Division and Surgical Technologists.

The priority list is forwarded to the Departmental Tender Committee (DTC) and to the Senior Chief Executive for approval. The approved lists, classified by hospitals, are then submitted to the Procurement Unit (PU) to initiate action for purchase.

2.7.2 Tender Preparation

Tender documents are prepared by the PU. They contain standard contract conditions as well as special contract conditions that take into account the specificities for contracts to supply ME together with accessories as well as a maintenance back-up. Standard bidding documents are issued by the Procurement Policy Office.

2.7.3 Invitation to Bids

The approval of the EC and DTC is sought for the launching of individual tenders at the level of the Ministry or through the CPB. The PU then invites offers from registered suppliers through different modes such as open advertising in the press, restrictive bidding and even direct purchases, which is decided in line with the Procurement Act. For emergency procurement the MOHQL has a fast track procedure and may even call for quotations through fax.

In cases where the contract value exceeds Rs 50 million (Formerly Rs 15 million but amended as per Finance Act 2009 and applicable as from July 2009), the Central Procurement Board (CPB) takes the whole responsibility and initiates all procedures from invitation to bids to evaluation and recommendation. Tender documents in those cases are prepared by the PU and vetted by the CPB.

2.7.4 Opening of Bids

A Quotation file is opened at the time tenders are launched. The file contains a copy of DTC's approval and requests for purchase from the respective regional hospital, together with specifications, tender documents and the names and addresses of the suppliers from whom offers are requested. At closing time and date, an opening committee takes cognizance of the detailed offers received. Bids are opened at the location and time specified in the bidding documents. After the tender opening process the committee prepares and certifies an opening sheet recording all bids received. The opening sheet contains details like the name of the supplier and the value of the bids. It is signed by members of the opening committee, including the chairperson. The bids and the opening sheet are kept in Quotation files, which are sent back to the PU.

The bids submitted by suppliers are accompanied with a bid security whose validity period should be in accordance with that specified in the tender documents. The validity period may be extended only with the agreement of the bidder. The potential bidders are allowed to bid within a deadline fixed by the PU/CPB as the case may be.

2.7.5 Bid Evaluation

The chairperson of the EC is responsible to recommend members to form part of the Bid Evaluation Committee (BEC). The BEC is set up within 15 days after opening of bids and is composed of at least three members who are knowledgeable about the ME. The functions of the BEC include the examination, evaluation and comparison of bids and determination of the responsive bid for the award. The different offers are evaluated technically as well as financially according to criteria such as cost, time and quality. The BEC produce their evaluation reports that are tabled for the EC's consideration and endorsement. The recommendations of the EC are finally transmitted to the DTC or the CPB for the purchasing decision.

2.7.6 Approval of Tender & Award of Contract

Letters of award are issued to successful suppliers, a copy of which is kept in Departmental Order file and another one sent to the store section of the regional hospital where the ME is required. Unsuccessful bidders are debriefed of the decision to award the tender. If there are no representations from unsuccessful bidders, the contract is prepared and allocated to the respective supplier. After the receipt of a performance security within 28 days, the order is confirmed.

The procured ME is delivered and installed in the presence of staff from store section whose responsibility is to verify the make and model of the ME according to the letter of award. There is a formal certificated acceptance process where the supplier issues a commissioning certificate to finalize the acknowledgement and receipt of the ME by the MOHQL. The commissioning certificate is also signed by the users, the Bio-medical technician and the Regional Health Services Administrator. Payments to suppliers are made in accordance with the terms of the contract.

CHAPTER THREE

FINDINGS

This chapter examines the efficiency and the effectiveness of the procurement system for ME at the MOHQL and highlights the weaknesses therein.

3.1 Planning

The availability of the right ME at the regional hospitals contributes in achieving the overall highest standard of good health amongst the population of Mauritius, Rodrigues, Agalega and the Outer Islands. Without proper management of demand, through actual needs assessment, adequate procurement, proper installation, preventive maintenance and rational usage, it will be difficult to meet the objectives. ME acquisition plans provide the means through which likely future ME needs are identified, criteria for prioritizing needs are set and informed decisions on spending priorities are made.

3.1.1 ME Procurement Strategy

The MOHQL has prepared a Health Sector Strategy covering the period 2005-2010 and is now in the process of finalising another one covering the period 2012-2016, which is a good initiative. The objectives and targets have been translated into the different programmes as per the Programme Based Budget, supplemented by policy decisions that are taken at management level and might entail the setting up of new services, the delivery of urgent health services and urgent replacement of non functional equipment that require the acquisition of new ME.

It was noted that the Ministry does not have a ME procurement strategy. The only ME plan available is the priority list which is drawn up after a yearly assessment of needs. This priority list does not have separate and distinct replacement and new acquisition plans and has not been formulated in the context of an equipment development planning framework to meet the objectives and targets set.

Further, well defined ME policies are important to provide strategic direction and guidance on the procurement of ME. It was noted that the Ministry does not have a comprehensive set of equipment policies to cover all areas related to procurement of ME. Some examples of ME related policies not seen at the Ministry are as follows:

- Replacement policy providing guidance on valid reasons for ME replacement
- Policies for the disposal of ME

These policies would provide guidance for the staff of the Ministry to adopt uniform approaches of carrying out their duties.

3.1.2 ME Procurement Plans

According to the Medical Equipment Management Guidelines, prepared by the Government of Namibia in 2003, the definition and justification of needs refers to the process by which equipment requirements are determined according to accurate and up-to-date information, regarding the agreed medical functions, procedures and techniques at hospitals, and the existing ME. The difference between 'what is' and 'what ought to be there' provides an accurate account of current requirements.

It was noted that none of the regional hospitals had established comprehensive ME procurement plan that showed the current condition and utilization of ME and expected future demand for ME. As such acquisitions were done in a haphazard manner in contrast with proper guidelines.

3.1.3 Needs Assessment

Planning and identifying needs involves a thorough examination of why the particular ME is required and must give consideration to the full range of options for responding to it. For example, a user department may have multiple ultrasound units; the needs assessment should clearly identify why a replacement or additional ultrasound units may be required.

The Chairperson of the Equipment Committee (EC) and her team along with the Regional Health Directors (RHD's) provide inputs towards the compilation of a priority list of ME requirements. Crucial to this process is the availability of comprehensive and up-to-date information about the existing ME. Further, information required by regional hospitals to enable them to define their needs includes Health Policies and Strategies which describe the medical functions at all levels. ME requirements must be in agreement with those functions. The EC at the Ministry is actually doing the prioritization work after the equipment needs have been pooled on a regional hospital basis.

However, it was noted that no regional hospitals have comprehensive and up-to-date information about the existing ME regarding their current condition and use. Details regarding equipment age and their degree of obsolescence were also not available. Moreover, no detailed history was kept in respect of individual equipment for cost of repairs and downtime. Further, no detailed plan of action was seen in the form of a list of ME to be replaced and those new ones to be acquired over a defined time schedule. In the absence of this information, it is felt that the current method of prioritisation is not appropriate. Thus there is the risk that equipment replacement is done in an ad-hoc manner. As such needs assessment is not being carried out in a structured manner.

Donated ME

Donation of ME is a regular feature at the MOHQL and represents an alternative source of ME acquisition. It was noted that the needs assessment does not take into consideration donated ME.

An example refers to the purchase of Gynaecology items for Victoria Hospital and the receipt of donations under the WHO Programme - Making Pregnancy Safer. Similar items of gynaecology equipment were requested by the same regional hospital both through the donation stream and the procurement function. The same equipment was later received as donation and also purchased by the Ministry. The items had been on the priority lists in 2007/08 and 2008/09 as the regional hospital had transmitted the same equipment request for priority purchase in both years despite the actual receipt of such equipment from donation.

Further, a sample of donated equipment received in 2008 was traced to the general inventory of equipment held by the Ministry and it was observed that some 75 per cent of the donated equipment was not posted to the inventory records of the Ministry. As such this impairs the completeness of information at the Ministry for decision making.

3.1.4 Inventories

The equipment information system was limited to inventory records for 2010 held by units at hospital level that have not been consolidated at the Ministry's headquarter. It is, therefore, not possible to know readily the total quantity of equipment types and models owned by the Ministry. This limited information relating to the inventory of ME may prevent the Ministry to have a clear picture of the current level equipment held.

Inventory records were not complete as important details such as cost, year of purchase, and expected lifetime, equipment makes, models and manufacturers' names were not inserted or were wrongly input. It is thus difficult for the Ministry to take cognizance of its equipment inventory and these restrict the decision-making process as proper business cases for equipment procurement cannot be produced.

3.1.5 Management Information System

Good quality equipment information is a prerequisite for control and decision making. The Ministry needs good Management Information System to produce right information at the right time so as to be communicated to the right person so that timely action is undertaken.

It was noted that the following equipment information were not available at the Ministry:

- Procurement information about tenders at regional levels is not consolidated at the ME Unit at the HO for monitoring and control purposes.
- No detailed history is kept in respect of individual equipment for cost of repairs, downtime and usage rates amongst others. Thus, important equipment data cannot be used to support purchasing decisions for ME.

3.1.6 Requests for Purchase of ME

Every year, the EC requests the RHD's of the regional hospitals and the Central Health Laboratory (CHL) to submit their annual requests for ME at least two months before the start of the new Financial Year.

It was noted that all the requests for purchase from regional hospitals for the year 2011 were submitted to the EC by end of September 2010. All the requests were accompanied with justifications as it is a requirement of the EC. However, that was not the case for the year 2010 as the requests reached the EC after the start of the financial year. Thus, the procedure established by the MOHQL was not followed and as such the acquisitions for that year was not completed on time.

3.1.7 Justification for Purchase & Estimated Costs

The user departments are required to justify their requests for new and/or replacement ME by addressing a number of criteria. The reasons most frequently cited to support the procurements are as follows:

- Existing equipment is ageing and in need of replacement;
- The availability of parts for existing ME was problematic;
- ME breakdown and downtime.

As stated earlier, the requests for purchase for the year 2011 were accompanied with justifications. However, it was noted that in most cases no written justifications were given to the EC for the requests made by the regional hospitals. The EC has no recorded system to assess the merit of the acquisition of specific ME. Other shortcomings identified were insufficient or inadequate estimated cost of the ME and an inadequate technical specification of the requirement. It was noted that the costs of some of the ME to be acquired for 2011 (Cardiotocography and Electrosurgical Diathemy Apparatus) were underestimated by the user departments in view of increasing their demand. However, in those cases, it was recommended to submit revised estimated costs for re-launching of tenders as the cheapest offers exceeded the threshold of 15 per cent.

Further the regional hospitals did not carry an evaluation with certain ME to determine whether it was more economical to replace the equipment than repair it. In addition, none of the regional hospitals had any documented criteria indicating when ME should be removed from service and disposed of. Disposal decisions were generally made as part of the annual ME acquisition process or on an emergency basis when necessary.

3.1.8 Equipment Committee (EC)

The EC plays an important role in the planning of ME investment. According to Public Procurement Guide “A successful procurement requires the expertise and effort of many persons. These persons must be organized into a team that brings together all of the skills and authority needed to manage and conduct the procurement. As far as possible, the following functions should be represented on the Procurement team: Procurement, Program/operations, Budget, and Technical.”

Currently, the EC is composed of the Director – Health Services as Chairperson and staff from procurement and finance sections. The main function of the EC, which should be a purely technical committee, is to review the list of ME from the regional hospitals. This is a very technical exercise and requires expertise in ME. As such the composition of the EC with only one technician and staff of procurement and finance sections who has no knowledge and expertise in ME cannot be understood. The RHD’s do provide inputs to the EC. However, it may be argued that the EC should be an independent committee. Having the inputs from the RHD’s may give rise to conflicts of interest.

It is important for the EC to give its support for a successful implementation of the priority list. However, the absence of follow up and monitoring has led to a significant backlog in equipment purchases.

3.2 Execution

3.2.1 Preparation and Submission of Specifications

The preparation of a specification requires in-depth research to be carried out and a great deal of accuracy. A poor description may mean that the product or service is not delivered to the standards required, and late changes to a specification may result in additional costs. Therefore, it is vital for all the personnel involved in equipment ordering to be conversant with the latest product information in respect of equipment models, technical features, functions and evaluation of alternative technologies. Personnel involved include those drafting technical specifications setting at user department to those involved in the evaluation of offers received.

Technical specifications are prepared by the Medical Consultants of the respective regional hospitals only after the priority list is drawn. Vetting of the specifications is done by a team comprising representatives of Biomedical Engineering Unit, ESD and Surgical Technologists. There is only one Biomedical Engineer at the Ministry to dispense advice on all the equipment range. His daily workload is too heavy to spare sufficient time for training and dissemination of technical knowledge.

Instances were also noted where equipment specifications were questioned during the evaluation of bids exercise. The requests for purchase for 2011 were submitted to the EC by end of September 2010 and the technical specifications reached the EC in March 2011. Further, for 2011, the EC decided to harmonise the specifications in view of acquiring the right equipment at low cost and at the same time to reduce the time spent on evaluation

procedures. However, it was noted that the tenders were cancelled following shortcomings noted in the specifications which did not match the equipment needs.

In connection with the harmonised list of ME, the followings were also noted:

- The tenders were launched on 8 July 2011, with closing date on 10 August 2011. The BEC was constituted on 10 October 2011 i.e. nearly at the end of the fiscal year. Evaluation procedures had to be postponed on several occasions due to unavailability of dedicated staff. Also evaluation procedures had to be carried out separately for the items of ME due to their specificity. At least eight teams of evaluators had to be constituted.
- Approval to purchase some of the items from DTC was obtained on 5 March 2012. Letter of awards for those items were issued on 21 March 2012. However, it will take around 12 – 14 weeks to get delivery of the ME.

3.3 Other Issues

3.3.1 Medical Equipment safe keeping

The Ministry must comply with the equipment manufacturers' recommended conditions of storage in order for the equipment to perform better and longer. Safe handling and storage care are vital for the sustainability of the equipment. However, the followings were observed:

- Survey results on ME usage and performance carried out in the year 2009 demonstrate that this is not always the case. Many cases were noted where special conditions/ environment parameters such as high humidity, excessive temperature, power cuts, power surges were not being provided for.
- Our survey revealed that: “All the rooms are not air conditioned; the humidity percentage is not controlled; fire exit non-existent in some rooms and not all the rooms are equipped with fire fighting equipment. The electronic equipment is not kept in appropriate environment”.
- As regards performance, survey results from users revealed that the ME procured does not always fully meet their intended health objectives and the targets of the Ministry. Equipment usage survey findings revealed that some equipment has not been put to effective use, hence not meeting their intended objectives.

3.3.2 Timeliness of purchases

Timeliness of purchases is one of the many effectiveness criteria to assess the procurement function as faster processing of tenders of ME contributes to the effective delivery of health care without major disruption in the health services. Shortcomings in planning and inadequate monitoring may both cause long delays in procurement. The following were noted:

- Time targets have not been set by the Ministry for equipment procurement exercises. Also, management information is not being generated for the Ministry to monitor the timeliness of its procurement process.
- The length of the procurement cycle from issue of tenders up to commissioning of equipment takes on average some seven months. The implication was that the commitments for one year were rolled over to the next year. For example, the total payments for period July to December 2009 amounting to Rs 57.2 million included payments amounting to Rs 49.6 million for previous years while payments for the year ended 31 December 2010 of Rs 164.2 million included payments of Rs 63.2 million for previous years.
- As the procurement procedures take long, large sums of money remained unspent and therefore lost at the end of each financial year.

3.3.3 Comparison and evaluation process

The Ministry carries out the evaluation of tenders for ME by considering both the technical as well as the financial offers together. The current evaluation process does not take into consideration the fact that technical and financial evaluation of tenders is to be carried out separately. The evaluation process is not structured to ensure that only technically compliant bids are eligible for financial evaluation.

Technical evaluation criteria have not been set at the outset in the tender documents so as to empower suppliers to know the requirements and propose their best input package. Instead, it is only at time of evaluation that the evaluators issue a shortlist of criteria for selecting the equipment. Selection criteria are not explicit and have to be inferred from the list of technical limitations identified in the technical evaluation report.

3.3.4 Commissioning of ME

The commissioning process is a formal acceptance process for the equipment. External parties get the assurance that representatives from the supplier and the Ministry have acknowledged and agreed on the readiness of the ME to be used safely to diagnose or treat patients. A commissioning certificate represents a formal document certifying the process.

It was observed, however, that the commissioning certificates were supplier driven with their own methodology to ascertain correct handing over of the equipment to the Ministry. No detailed particulars were provided on the process. Thus, sufficient assurance could not be obtained that the acceptance activities were carried out appropriately.

For the acceptance process at the Ministry's end, there were no standard checklists of milestone issues that have to be addressed in a commissioning exercise. In the absence of such a checklist, the commissioning exercise cannot be conducted in a standard manner and the possibility of omitting some essential steps for proper commissioning of ME is real.

Further, it was noted that in several cases ME were delivered but the installation and commissioning certificates were not submitted to the Ministry to complete the procedure for

payment. At the same time, it was also noted that regarding Distilled Water Apparatus and Crossing workstation, the ME have not been used since the moment they were delivered due to the failure to prepare the rooms for their installation. As a result, these devices have not been used for several months.

Conclusion

It was noted that the procurement process takes on average 12 months before they are completed. A sample of ME, as shown in [Appendix I](#), acquired and paid for in 2010 and 2011 was selected to confirm the time taken at each and every stage of the process. As such it is desirable that the EC requests the RHD's to submit their lists for purchase not two but at least 12 months before the start of the new financial year if it wants to ascertain that procurement is completed within a year.

CHAPTER FOUR

CONCLUSIONS

ME is a key component in the delivery of quality and effective health services. It represents an essential resource to the achievement of the ministry's health objectives. Although the Ministry spends a lot of money on ME, it does not have a formally written plan with clearly defined objectives, targets, outcomes and time frames especially for the procurement activity. Consequently no specific tactics have been developed for carrying out the procurement activity in a structured manner on a year to year basis.

The budget for the acquisition of ME by the MOHQL has been constantly increasing over the years. It has been noted that despite the difficulties faced by the MOHQL to obtain funds from the Ministry of Finance to acquire ME, thousands of rupees remain unspent in the budget every year because the procurement process, from request for purchase up to commissioning exercise is too long. Budgeted amounts voted for one year are not used exclusively for the acquisitions of that respective year. This is because acquisitions for previous years are rolled over the current or future years.

Based on our sample we found that there is no equipment related MIS to help in the elaboration of procurement plans; ME is not properly safeguarded owing to control weaknesses. Based on file review and discussions with managers we concluded that ME needs must be justified in terms of what we would like to have and what we can afford. This should be matched with what we already have so that we can arrive to what equipment we actually need. There is a need to set up a central equipment information unit at the Head Office and the regional hospitals involving the use of ICT to link them. Equipment information should be captured in the central equipment database as soon as acceptance checks for newly purchased or donated equipment are completed. This will improve asset management practices and prevent misappropriation of ME.

It was also noted that the process of procurement of ME was not based on objective analysis and calculations, and the Ministry did not monitor the ME receipt. Consequently, the Ministry spent significant financial resources, but did not secure the purchase of urgently needed ME, which resulted in depriving patients of quality services and limited the number of medical examinations performed.

A procurement monitoring system would deal with the identification of milestone dates in the procurement cycle so that delays can be identified and addressed. Guidance is needed to reengineer the specifications setting and evaluation processes. These technical areas form the core of the procurement of ME and are pivotal to getting the right equipment. Further, the Ministry should consider decentralizing procurement of ME.

CHAPTER FIVE

RECOMMENDATIONS

5.1 ME Procurement Strategy

The Ministry is presently in the process of finalizing a Health Sector Strategy for the period 2012-2016. Along with the Health Sector Strategy, the Ministry needs to develop a procurement strategy for ME with clearly defined objectives, targets, outcomes and time frames. A planned procurement strategy will contribute to meeting the Ministry's health objectives and targets as it helps in obtaining the right equipment at the right time, cost and quality. Strategic procurement planning has to be monitored and evaluated to assess whether health targets and objectives initially set have been attained.

5.2 Defining and justifying needs

- MOHQL needs to have appropriate criteria and policy for needs assessment and procurement to ensure an optimal allocation of scarce resources. Equipment requirements need to be properly assessed to ensure that only vital and urgent needs are considered.
- The current system of needs assessment and prioritization should be reviewed. The EC needs to consider the equipment requirements in the light of the actual inventory of equipment in working order held by the MOHQL prior to prioritizing the equipment for purchase. In order to decide on its purchasing requirements effectively, the Ministry should have sufficient data which will help in understanding the present equipment situation. It is helpful for the Ministry to keeping an up-to-date equipment inventory to help in the analysis of its equipment situation effectively.
- The EC should be provided with background information on the current and future demands of the user department and any changes to the nature, type of ME that may be required to meet those future demands. It should also include information on activity levels, demand, utilization, patient profile, types of procedures, waiting time to access the ME, and the relative importance of the department to the health service and the delivery of health services more broadly.
- MOHQL should ensure that each RPPC submits a list of ME to be procured, together with the best estimated costs, before the start of the financial year so that the acquisitions for the current year are not rolled over to the next financial year. Thus, service delivery would be enhanced if the right equipment is available at the right time.
- A review of the existing equipment should be carried out in view of determining whether the performance of these assets is adequate to support the service delivery strategy or if the equipment is no longer required or superseded by changes in technology or changes in clinical practice.

- It is also important for the EC to set up a monitoring mechanism to assess the extent of implementation of the priority list of ME.

5.3 Donated Medical Equipment

ME to be procured and donated ME needs to be properly coordinated so that donations can be taken into consideration prior to purchase in order to avoid acquiring equipment that have already been received through donations. Donated equipment should be treated the same as if it were purchased. This means it should be registered and consolidated into the equipment inventory. The EC also needs to be informed of all donations in the pipeline so that at the time of finalising the priority lists, these are considered.

5.4 Selecting the ME

The MOHQL needs to give due consideration to the purchase of relevant accessories such as air conditioners, power voltage stabilizers, uninterrupted power supplies and dehumidifiers-together with the ME. This will enable the Ministry to comply with manufacturers' recommended storage conditions for the equipment to last longer and perform better.

5.5 Inventories

There is a need for the MOHQL to consolidate inventories of equipment held by the five regional hospitals so as to control and monitor the asset base. Asset management need to be enhanced so as to reduce the risk of misuse and loss. This will also help to improve the needs assessment process as up to date information will be available for making better decisions.

The Ministry may also consider options to support the introduction of better information technology systems for the management of ME. The MEM Guidelines recommends the use of the Medical Equipment Management System (MEMS). The inventory system may contain detailed electronic records of all ME in all the regional hospitals. Each item of ME is represented by a set of parameters such as, for example: Name, Model and Serial Number. MEMS keep technical details of all items of equipment, as well as information on the physical condition and the place where the equipment is situated. MEMS also keep track of cost price and expected life-time of equipment.

The equipment inventory can assist in determining and prioritising required budgets for equipment replacement, as it contains all the data related to each item of equipment, including its replacement cost and lifespan provided the inventory is kept up-to-date, the information contained in the inventory is reliable and accurate.

Lessons to be learned: Guidelines regarding ME Management in Nigeria.

When receiving new equipment, all information should be filed with regard to vendor, service provider, etc, to maintain a database of manual and contract details. The inventory must be accurately maintained to obtain adequate property control. Maintenance Records for each asset should be included in the system.

All medical equipment considered to be an “inventory item” should be tagged for the purpose of inventory as well as for inspection and maintenance records. The title of the user responsible for the operation and management of each piece of equipment should be specified on the tag or the label.

5.6 Specifications

Health personnel involved in ME procurement should consider expanding their product information and knowledge base. Therefore it is useful to develop a library of reference materials and equipment literature, covering a broad range of types of documents. The Ministry should find out as much as possible about the equipment before buying it in order to understand the specific requirements of the equipment and ensure that the most appropriate equipment is purchased. These provide the basis for giving expert advice in forums such as technical evaluation committee. Other benefits are as follows:

- Helping to standardize equipment and optimize use
- Improved access to ME for maintenance
- Ensuring equipment is complete with necessary accessories.

There are several sources of information related to general and technical information on ME, for example:

- Company catalogues and brochures
- Journals and magazines
- The internet (manufacturers’ and suppliers’ websites)
- Equipment procurement software

There is a need for the Ministry to define procedures for setting of business cases to justify major acquisitions of ME. A business case sets out for approval at the appropriate level the basis for a decision on the acquisition of ME. It must convincingly demonstrate that an acquisition best meets the identified needs of users or patients, is economically sound and affordable.

5.7 Equipment Committee

The EC needs to support the formulation of ME policies and strategies and monitor its implementation. Based on USA's example, the role and responsibilities of the EC can be further enhanced, as follows:

- Align health technologies (medical equipment) with health services to be provided
- Define investment priorities
- Develop procurement process in accordance with investment strategies
- Incident investigations (identifying deficiencies that could result in future incidents, and recommending corrective action to eliminate any identified deficiencies).
- Data collection/management(e.g. run life expectancy reports on existing equipment and use that data to schedule equipment for replacement)
- Orientation and continuing education (users of equipment).
- Orientation and continuing education (maintainers of equipment)
- Monitoring overall equipment.

5.8 Timeliness of procurement

There are a number of ways that can contribute to reduce delays and they include:

- Place orders well in advance of deadlines
- Users supply the correct specifications of required ME
- The regional hospital ensures that regions avail of an up-to-date inventory of their ME.

The Ministry should also set time targets for the processing of tender files. This data will stand as performance indicators for the timeliness aspect. However, depending on the type of equipment and who is undertaking the tender activities, the time lapse can vary considerably. The key is to set appropriate deadlines and monitor performance against them.

A procurement monitoring system needs to be envisaged. It would deal with the identification of milestone dates in the procurement cycle so that bottlenecks can be identified and addressed. The management information generated can be used for identifying split tendering and multiple ordering and strengthen the procurement planning process

The Ministry can monitor the progress of its orders using a Gantt chart. This tool displays all the activities, from placing the order to using the equipment. The Gantt chart shows at a glance what activities are behind schedule, on time, and ahead of schedule and it can be used to coordinate all procurement activities across the agreed time period.

5.9 Evaluation of Tenders

Technical evaluation criteria have to be set at the outset in the tender documents so as to empower suppliers to know the requirements and propose their best input package. Prime selection criteria should be explicit and form the basis of examination in the technical evaluation report.

The process of evaluation and comparison can often be time consuming and complex. However, it is important to ensure that decisions for awarding contracts are not made simply on the basis of which items are the cheapest. The process of evaluation and comparison must be fair and thorough. To achieve this, the process must follow a defined pattern to ensure all bids/quotes are dealt with in exactly the same way items should be assessed against the requirements specified in the purchase document. The use of an elimination process is recommended, where non compliant offers are rejected at each stage. Offers should be judged against the following criteria:

- Compliance with requirements in the purchase document;
- Technical nature of the offer;
- Financial nature of the offer; and
- Supplier qualification criteria

5.10 Installation and Commissioning of ME

Installation is the process whereby equipment is physically put in place in the correct location and may require preparation of the site by the user, supplier or contractor. Commissioning follows installation and is the process of rendering the equipment into use while ensuring that the equipment operates according to desired standards.

Guidance is needed from the Ministry to define proper procedures for the acceptance and commissioning process. Milestone acceptance tests should be identified and a standard form should be designed. Each user departments should have the same official acceptance process for equipment that arrives on site. The commissioning process needs to prove beyond doubt that the equipment has undergone strict acceptance testing activities before being finally accepted as valid equipment acquisitions. This is a crucial quality assurance process to screen substandard ME before completing payment formalities. The commissioning exercise needs to be carried out within a timeframe set by the MOHQL. The following guidelines for acceptance and commissioning may be used by the Ministry.

- *Acceptance activities.* During the acceptance process, the Commissioning Team needs to undertake the following activities:
 - Check that the complete order has arrived
 - Ensure installation, commissioning, and initial training takes place

- Ensure that the equipment is mechanically and electrically safe for users and patients and is functioning properly
 - Enter the equipment into the asset register
- *Acceptance standard recording- the Acceptance Test Log sheet.* A simple way to carry out these activities is to fill in a standard Acceptance Test Log sheet. This form is specially designed to make checking easier and helps to avoid mistakes and omissions. It is an important document since it is the first record to be placed in the equipment file and provides all relevant details of the start of the equipment's life at the health facility, and commences the service history of the equipment. The Acceptance Test Log sheet has sections that cover all the components of the acceptance process, including:
- Delivery/receipt of the equipment on site
 - Unpacking and checking for damage and for the complete order
 - Assembly
 - Installation
 - Commissioning and safety testing
 - Official acceptance
 - Initial training
 - Registration
 - Handover.

Lessons to be learned: Guidelines on ME Management in Nigeria regarding Installation of ME

All medical equipment should be installed according to the Manufacturer's specifications as well as Building/ Electrical and Occupational Health and Safety specifications. New equipment should be tested prior to being placed in service and also after any repairs and modifications. Intervals of testing of equipment will be based upon product literature. Installation normally consists of physically attaching the equipment to the building and hooking utilities (plumbing, cables or wiring that had been provided during the preparatory phase). Equipment Users are responsible for any infrastructural changes required for installation.

Upon receipt, a designated administration officer and /or a medical maintenance technician will tag the equipment with the proper inventory code. Once the unit has been accepted, the warranty period commences. Acceptance testing usually consists of testing by users and designated administration officers, including the medical maintenance technician. The manager responsible for use of the equipment will arrange for acceptance testing.

5.11 Decentralized Purchasing of ME

MOHQL needs to decentralize the procurement of ME at regional hospital levels. It has been noted that over the years the length of time taken from requests to purchase up to commissioning has contributed to get delivery of the ME at the regional hospitals with considerable delay. It is therefore better to let the regional hospitals acquire their own ME so that the time spent could be reduced and at the same time it will decrease the burden of procurement at the HO. However, it is suggested that the EC should be kept informed of all purchases and they should be consolidated at the HO for control and monitoring purposes. Decentralized purchasing involves having departments purchasing their own products or services. The advantage of decentralized purchasing is that it provides less bureaucracy since the manager has an individual dedicated to his purchasing needs and thus quick buy decisions can be made. Decentralized purchasing also provides for a closer knowledge of requirements since the dedicated buyer has the knowledge of the project needs.

DELAYS IN PROCUREMENT PROCESS

Equipment	Qty	Quotation No.	Time Taken in Procurement Process			Total months
			From Request to Launching of Tender months	From Closing of tender to Award of contract months	From Delivery to Commissioning months	
Mobile Scialytic Lamp	1	2 of 2010	3	8	6	17
Surgical Microscope	1	23 of 2010	7	4	1	12
PC Controlled spectrometer	1	39 of 2010	6	8	4	18
High Performance Chromotograph	4	57 of 2010	9	6	1	16
Activated Coagulation Timer Cabinet	1	59 of 2010	8	4	2	14
Dialysis machine	25	3 of 2011	3	3	4	10
Water Treatment plant	1	3 of 2011	3	3	4	10
Dialysis chairs	10	3 of 2011	3	3	4	10
Ultrasound Machine	4	11 of 2011	5	7	2	14
Non-contact Tonometer	2	14 of 2011	5	5	2	12
Anaesthetic machine	2	14 of 2011	5	5	3	13
Neonatal ventilator	1	23 of 2011	6	4	2	12