

**GUAM MEMORIAL HOSPITAL AUTHORITY
TAMUNING, GUAM**

REVIEW AND APPROVAL

The signatories on this document acknowledge that they have reviewed and approved the following:

Bylaws Submitted by _____
Department/Committee: _____

Rules & Regulations Title: _____

Policy & Procedure Evaluation for 2017 Equipment Management Plan

| | Date | Signature | |
|----------|---|-----------|--|
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ANNUAL EVALUATION OF THE EFFECTIVENESS OF THE MEDICAL EQUIPMENT MANAGEMENT PROGRAM Calendar Year 2017

I. OBJECTIVES

The program is designed to protect all GMHA patients, staff, equipment, property, and the environment by promoting the safe and reliable operation of medical equipment and related components. The primary objectives of this plan of action are as follows:

- Ensuring continued compliance with applicable regulatory requirements, industry standards, guidelines, and equipment manufacturer's recommendations.
- Selecting and acquiring safe medical equipment.
- Carrying out an effective preventive maintenance program.
- Providing equipment technician and end user training.
- Ensuring back-up equipment and plans are readily available in the event of equipment failure or malfunction.
- Monitoring all hazard notices/product recalls and providing related information to equipment users.

These objectives are accomplished and completed through the following processes.

A. Criteria and Inventory.

The Biomedical Shop utilizes the antiquated MP2 equipment management software program to maintain a current up to date and accurate inventory of all medical equipment covered under this plan. Before any medical equipment is placed into patient use, it is evaluated based on Risk Factors (function, clinical application, equipment incident history, maintenance frequencies and requirements, environmental use) a determination is made whether to include a particular equipment under the equipment management database. All medical equipment determined and included under this database is assigned a unique Biomedical Shop control number for tracking and preventative maintenance purposes.

B. Preventative Maintenance Strategies.

- Technical inspections on new medical equipment to include pre-operational verification and safety checks are performed prior to patient/ staff use.
- Routine Safety inspections are constantly being conducted monthly, quarterly, semi-annually and annually on all medical equipment that are included under the Medical Equipment Management Program (MEMP) and always after any repairs have been made to the equipment's electrical or electronic circuitry.
- Preventive maintenance checks, routine safety and operational checks are performed by GHMA Biomedical electronic technicians in accordance with the equipment manufacturer's recommendations or based on the outcome of the (MEMP) five (5) point risk assessment which is conducted prior to equipment utilization.
- Calibration, system operational verification and certifications are consistently being performed in accordance with the equipment manufacturer's recommendations or based on the outcome of the MEMP five (5) point risk assessment which is conducted prior to equipment utilization.

C. Hazard Notices and Product Recalls:

Refer to MEMP outlining procedures and guidelines to follow in the event Hazard Notices and Product Recall Alerts are received from the Food and Drug Administration (FDA) or equipment or product manufactures.

D. Equipment Failures:

The Acting Biomedical Electronics Superintendent (BES), and Acting Hospital Facilities Maintenance Manager (AHFMM) review equipment problems, failures, user errors, and submit monthly summary reports to the Environment of Care (EOC) Committee for review and corrective action.

What are the results of the review and evaluations of the objectives of the Medical Equipment Management Program?

During the calendar year 2017 the following objectives were established under the MEMP.

Develop written procedures related to the MEMP outlining procedures to address Hazard Notices and Product Recalls on medical equipment, supplies and related devices.

Hazard Notices and Product Recalls covering medical equipment, supplies and related devices are provided to FM – Biomedical Shop through the Materials Management Department (MMD) who is the primary responsible party for monitoring all Hazard Notices and Product Recall Alerts from the FDA or directly from the manufacturer. The Acting BES and the AHFMM or designee review each notice/recall, and take immediate corrective action as needed and document them into the MP2 equipment management software program and also notify MMD of findings regarding notice/ recall received.

This objective has been met:

- Develop written procedures related to the MEMP outlining methods and criteria on the proper selection while acquisitioning new medical equipment.

Through development of Policy No. A-LD1320 Product Standardization Evaluation Committee (PSEC) under the Materials Management Manual. The policy needs to be reviewed and revisited as Physicians and end users would insist on a preferred equipment brand, type, or manufacturer.

This issue is deferred to PSEC.

- Provide more in depth training to clinical users on the existing Medical Equipment Failure Intervention (MEFI) Policy (EM6480-004) to address the following:

- ✓ What to do in the event of equipment malfunction, disruption or failure.
- ✓ When and how to perform emergency clinical intervention when medical equipment fails.
- ✓ Availability and location of Back-up Equipment.
- ✓ How to correctly report all equipment failures using the Equipment and Utility Failure report.
- ✓ NOTE: For the current Hemodialysis machines no contract for continuous maintenance by manufacturer or technical support has been provided after warranty has expired.

Through on-going in-service training conducted by the Biomedical staff on the safe and proper operation and function of medical equipment to include failures of medical equipment during the new employee's general orientation.

This objective has been met:

The following represents goals of the Medical Equipment Management Program for Calendar Year 2018:

- Continue that all medical equipment are inspected within their preventive maintenance schedules and ensure services and repairs are in accordance with manufacturer's recommendation.
- Continue monitoring all hazard notices/product recalls and providing related information to equipment users.
- Continue to ensuring back-up equipment is readily available in the event of equipment failure.
- Continue to provide technician and end user training for all covered equipment.
- Continue to assist in outlining correct and compliant methods and criteria on the proper selection while acquisitioning new medical equipment.
- Ensuring compliance with applicable regulatory requirements, standards, guidelines, and manufacturers' recommendation.
- Continue to monitor and work to minimize the Unable to Locate (UTL) medical equipment in close coordination with end users.

New Acquisitions: Acquired 63 new Medical Equipment for 2017.

| | | | | Training Provided to Biomedical Electronic Technicians | | |
|------|--------------------------------|-----|----------|--|--------------|-------------|
| Item | Equipment Description | Qty | End User | Local | Manufacturer | Recommended |
| 1 | Weight Scale (Lab) | 1 | X | | | X |
| 2 | Vital Signs Monitor | 5 | X | | | X |
| 3 | Vascular Doppler | 3 | X | | | X |
| 4 | PH Meter | 4 | X | | | X |
| 5 | Humidifier | 2 | X | | | X |
| 6 | Cryostat | 1 | X | | | X |
| 7 | Sure Temp Elect. Thermometer | 6 | X | | | X |
| 8 | Philips Sure sign VSM | 12 | X | | | X |
| 9 | Treadmill | 1 | X | | | X |
| 10 | Zoll AED Defibrillator | 3 | X | | | X |
| 11 | Ultrasound | 1 | X | | | X |
| 12 | Fluid/ Blanket Warming Cabinet | 1 | X | | | X |
| 13 | Bladder Scanner | 1 | X | | | X |
| 14 | AccuCut Microtome | 1 | X | | | X |
| 15 | Bed Scale | 2 | X | | | X |
| 16 | Glidescope | 1 | X | | | X |
| 17 | Diaper Scale | 2 | X | | | X |
| 18 | Infant Ventilator | 2 | X | | | X |
| 19 | Info Vac Therapy Unit | 1 | X | | | X |
| 20 | Infant Resuscitation Machine | 2 | X | | | X |
| 21 | Pulse Oximeter | 8 | X | | | X |

| | | | | | | |
|----|------------------------|-----------|---|--|--|---|
| 22 | ACT Plus Machine | 1 | X | | | X |
| 23 | Nu Step Cross Trainer | 2 | X | | | X |
| | TOTAL EQUIPMENT | 63 | | | | |

Upgrade PICU and Medical Telemetry CMS (Central Monitoring System) was completed in 2017.

SCOPE

What are the results of the review and evaluation of the scope of the MEMP?

The MEMP is facility wide and plans to address all medical equipment utilized on patients for Life Support, Diagnostic and Therapeutic treatment and monitoring are inspected and tested regularly to minimize the clinical and physical risks of equipment failure.

Biomedical personnel were **unable to locate** all scheduled preventive maintenance equipment to conduct the required preventive maintenance. Another reason for not consistently meeting the monitoring activities threshold is the **lack of assistance and cooperation** of the end users/operators and Department Managers/Supervisors to look for these unable to locate equipment.

In service trainings were readily scheduled and provided to end users as requested or during the newcomer's staffing orientation.

For local maintenance services for this year, end users were task to implement, inventory, monitor, and make necessary amendment of their equipment and preventive maintenance contracts.

III. PERFORMANCE

Medical Equipment Failures, User/Operator Errors - Reports are maintained and submitted to the EOC Committee monthly through the following procedures:

The MEMP collects hospital wide information via work orders and equipment failure reports channeled to the Biomedical Shop. The Acting BES and Biomedical staff conducts detailed review and summarization of these problems, failures, user errors, and relevant published reports of hazards. These findings, recommendations, actions taken, and results of measurement gathered are continually reported to the EOC Committee on a monthly basis.

Corrective action taken to prevent recurrence – Following equipment evaluation by Biomedical personnel it is determined that these failures are due to the operator errors. Biomedical staff conducts refresher in-service trainings to all end users on the function and operation of the affected medical equipment especially to new employee/staff.

Were problems or opportunities for improvement identified?

- In Calendar 2017, Biomed severe staffing shortage is still a major factor that resulted **to not** meeting established PM threshold in the month of April. However, month following till end of the year threshold has been modestly met as required.
- Biomedical Electronics Superintendent resigned in May of 2017.
- In Calendar Year 2017 there were no medical equipment failures that directly impacted or affected patient care.
- It has been noted that company or manufacturer trainings for BIOMED staff for new acquisitions has been severely limited, if not withdrawn from the current provisions.

- o Continue to monitor the Unable to Locate (UTL) medical equipment. Partially met and will defer to the end users coordination for appropriate actions.

Has the facility selected processes for monitoring that need the most attention? Please explain.

The monthly Unable to Locate (UTL) scheduled preventive maintenance medical equipment list for various wards/areas is continuously being monitored and communicated to all Department Heads and Supervisors, to minimize current UTL numbers.

What are the results of performance improvement projects selected for the year? How did these projects affect patient care delivery?

There are no performance improvements selected and affected patient care delivery.

| Equipment Management 2017 | JAN 2017 | FEB 2017 | MAR 2017 | APR 2017 | MAY 2017 | JUN 2017 | JUL 2017 | AUG 2017 | SEP 2017 | OCT 2017 | NOV 2017 | DEC 2017 |
|--|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| No. of Equipment Failures | 76 | 69 | 77 | 38 | 74 | 63 | 85 | 92 | 74 | 69 | 38 | 77 |
| No. of Equipment Failures due to Operator Errors | 8 | 6 | 3 | 6 | 6 | 10 | 8 | 5 | 0 | 4 | 0 | 4 |
| No. of Equipment Failures that Impacted Patient Care | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| No. of Equipment w/PM Completed | 50 | 309 | 265 | 193 | 324 | 198 | 48 | 277 | 268 | 315 | 330 | 51 |
| No. of Equipment Scheduled for PM | 52 | 344 | 292 | 327 | 335 | 199 | 51 | 311 | 281 | 318 | 331 | 51 |

There were no revision in the MEMP performance improvement indicators/measures for FY2017.

IV. PLAN/PROGRAM EFFECTIVENESS

Identify the MEMP strengths and weaknesses (What has been accomplished, what opportunities for improvement were identified?):

Strengths of the MEMP – Continue to be monitoring, correcting, and reporting equipment failures as hospital wide information is collected through submission of work orders and equipment failure reports. The Biomedical Shop/Staff led by the Acting BES and the AHFMMA or designee conduct continuous reviews and compilation of summaries identifying problems, failures, findings and corrective actions taken. GMHA continues to retain BRS (Biomedical Repair Service) a local contract Biomedical Equipment Service provider to augment the technical and miscellaneous needs in line with the intent of complying with the accreditation requirements.

Weakness of the MEMP – The Biomedical Shop with the presence of acting BES is still in the process of continuously updating and inputting all those completed scheduled preventive maintenance work orders in the MP2 database.

The antiquated MP2 equipment management software program is proprietary software not belonging to GMHA and therefore needs an upgrade (costing to \$25K to \$30K) that will allow multiple FM personnel to simultaneously enter, close, and access work orders. Immediate replacement and upgrade is strongly recommended to prevent any MP2 software corruption, glitches, and crashes. Logging of work orders and reports are still a big challenge due to ongoing staffing shortages and limitations to single person entry of work orders.

As always Financial capacity and proper budgeting must be stable to assure prompt payment to service providers and ongoing parts purchasing so services can continue to be provided as needed and scheduled.

What are the goals for the MEMP for Calendar Year 2018?

- Focus on resolving current weaknesses identified and Continue to maintain and build on strengths to improve the overall effectiveness and performance of the program.
- Address the severe staffing shortages in BIOMED Shop by hiring at least 2 more Biomedical Electronic Technicians. Biomedical Electronics Superintendent position needs to be filled.
- Continue to provide refresher in-service trainings on proper use and care of medical equipment to all end users in an effort to minimize user/operator errors.
- Provision of manufacturer's trainings requested to update and re-certify qualifications of biomedical staffs is imperative and highly recommended to continue meeting the required trainings for the electronic technicians.
- Acquisition, replacement and planned procurement by end users of equipment that has past or is nearing its life expectancy.
- Monitor other outsourced service maintained and repaired equipment when severe staffing shortage is adequately addressed.
- Acquisition of BIOMED Shop's new testing and maintenance equipment, tools, bench/es, furniture, adequate equipment repair parts and Preventive Maintenance (PM) kits especially for critical and life supporting equipment.
- Enforce and increase coordination by Department Heads and Supervisors adherence, cooperation, and active participation to take ownership and responsibility of their equipment along with end user accountability due to neglect and especially those missing or unable to locate (UTL) equipment during scheduled Preventive Maintenance (PM).
- Further reduce the numbers of missing or unable to locate medical equipment during scheduled PM.


What resources have been allocated toward these goals? Budget request for 2018 review and will show increase. The following are requested.

- Budget for training is requested and included yearly.
- Increased budget for Tools, Test and Calibration Equipment, and replacement equipment parts.

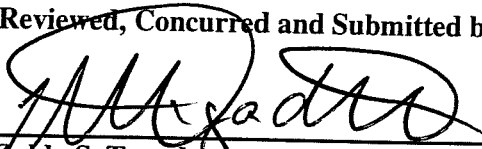
The following as part of the 2018 goal is recommended for consideration is forwarded to the EOC Committee, Performance Improvement (PI) Committee and to Administration.

- Technical training for the biomedical staff provided by the manufacturer at the manufacturer's training facility for life support and diagnostic equipment.
- Procurement and calibration of all testing and calibration equipment and replacement of antiquated and obsolete test equipment and maintenance tools for BIOMED Shop.

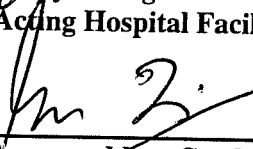
NOTE: This report is based on data gathered for Calendar year 2017.


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Maintenance Workers for Acting BES

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Date: 01/19/2018


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Chairperson, Environment of Care Committee

Date: 02/22/2018