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IMROVEMENT INITIATIVES FOR THE BIOMEDICAL ENGINEERING TEAM AT COLONIAL WAR MEMORIAL (CWM) HOSPITAL with FIJI HEALTH FACILITY PROGRAM

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[1] https://www.health.gov.fj/health-ministry-pharmaceuticals-supply-chain-reform-project-to- improve-access-to-medicines/

[2] The Fiji Times » CWM clean-up campaign – Coordinated culture of keeping our hospitalclean

1. BACKGROUND

The Fiji Pharmaceutical and Biomedical Services Centre (FPBSC) is mandated to regulate and managemore than 3000 listed medicinal products, medical devices/biomedical equipment and other products and supplied to public health facilities including the Colonial War Memorial Hospital (CWMH), underthe Ministry's Strategic Plan Priority 3.[1]

The CWMH biomedical engineering (BME) department is implementing supply chain management (SCM) improvement initiatives reform project [1], supported by the Australian Aid Fiji Facility. The aim is to enhance the availability, reliability, and storage of biomedical equipment for patient care.

BME focus on the upgrade of its technological and storage infrastructure, people and performance andquality improvement programs. Investments in mSupply SCM and Tupaia information assets register systems, improving data credibility and information synthesis for evidence-based planning and decisionmaking. People and performance review of career pathways, matched emoluments to qualifications, training, and high-end equipment specializations initiatives to enhance skill sets.

2. PROGRESS AND ACHIEVEMENTS

2.1 5S Project

The adoption of 5S Kaizen principles is part of the preliminary initiatives toward enhancing biomedical asset and inventory management. The department has implemented 5S steps Sort, Set in Order, Shine, Standardize, and Sustain at three distinct locations. In step 1 Sort phase, obsolete biomedical equipmentand accessories were identified during a stock take. In step 2 Set in Order all biomedical equipment awaiting parts and repairs were arranged in a logical and accessible manner in designated storage rooms.

The Shine principle emphasized cleanliness and maintenance upgrade of biomedical workshop and storage rooms. Physical cleaning and paint work of the building was executed in conjunction with the CWM clean-up campaign [2]. Standardization is in plan to be achieved through the procurement of office and storage materials to assist the department with minimum disruption to workflow.

The final step will focus on continuous improvements via regular audits and staff training to sustain the 5S practices.

1 Strategic-Plan-2020-2025-1.pdf (health.gov.fj)

2.2 Board of Survey

In conjunction with the 5S initiative, the department completed a Board of Survey for a total of 500 biomedical equipment with surpassed lifespan, including government of Fiji purchased and donated equipment. This initiative highlighted potential areas for improvement leading to collaboration amongthe supply chain reform project officers and the biomedical department towards development of innovative solutions such as the review and upgrade of standard operating procedures.

The progress and achievements of these improvement initiatives have been promising. The department has witnessed support from the medical superintendent and the clinical department heads. Furthermore, the biomedical engineering department's adherence to 5S principles and the Board of Survey initiative has not been in seclusion. The positive impact of these initiatives has extended to othercritical departments such as the Operating Theatre (OT), Intensive Care Unit (ICU), and Accident & Emergency (A&E), promoting a culture of continuous improvement throughout the CWM hospital facility.

3. CHALLENGES

Implementing Quality Improvement Programs (QIP) in the BME department has its challenges. First and foremost, the BME department at CWMH provides support to central eastern division, including the outer islands. Coordinating improvement initiatives while balancing essential services such as preventative maintenance can be challenging.

Capacity to conduct market research for upcoming medical technology is critical. This practice is essential for evaluating and decision making when obtaining equipment specifications for spare part requesting and procurement of new equipment. The Biomedical Public Health Network is an avenue to regionalise and standardise high end BME equipment.

Effective communication and collaboration among various internal units of the hospital is vital for the success of improvement initiatives. The BME team collaborates with clinicians, administrators, nursing unit managers, hospital services unit, asset management unit, digital health team and various external vendors. Coordinating meetings and managing timelines to meet project deadline can be challenging, particularly with different organizational structures.

Lastly, budget limitations and human resource constraints continue to pose consistent significant challenges to improvement initiatives. Implementing and sustaining such investments require supplementary funding and continual support such as training and professional development programs.

4. FUTURE DIRECTIONS

Recommendations for future directions on improvement initiatives for the CWMH Biomedical Engineering Department are as follows:

1. Review of Specialist Biomedical Engineering Job Evaluation Exercise

- Structure pathways for relevance and towards proper people and performance systems.

2. People & Performance -Continuous Professional Development

- Proactively and intentionally participate in the Biomedical Pacific Health Network for capacity development opportunities as part of standardization and regionalism.
- Solicit support at conferences, workshops, and training programs to stay informed on the latest updates within the biomedical engineering community, both local and regional.
- Facilitate problem-based learning during department meetings or otherwise, to promote continuous learning.

3. Implementation of mSupply and Tupaia

- Training and certification of the BME officers on the software management systems.

4. Biomedical Asset and Inventory Management

- Assimilation of the existing assets registry into the new management system to meet regulatory standards.
- Conduct regular audits using the Tupaia registry to identify areas for improvement, enhance reporting and decision making.

5. Governance

- Improving good governance with standards and networking with other stringent regulatory bodies like FDA and TGA
- Review current National Governance Structures and Merge as one under the Principal Act
- Explore outsourcing of high-end equipment at national and /or PHN level facilitated by key development partners.

6. Build Operational Relationships

- Collaborate and build strong relationships with various internal units including clinicians, to gain insights into biomedical equipment needs and challenges.
- Collaborate with the CWMH biomedical and clinical products committee in meetings and development strategies.

7. Enhancing Patient Safety and Experience

- Conduct biomedical equipment electrical safety testing and validation to ensure the safety, reliability, and usability of biomedical equipment and accessories.
- Coordinate feedback from end-users of biomedical equipment such as patients and clinical staff, toimprove the user experience and address any functionality issues.

8. Monitoring, Evaluation and Learning

- The biomedical improvements officer to liaise with the HoD and department officers to identify improvement initiatives.
- Produce monthly progress reports to track performance and identify areas of potential investment and further improvement.
- Work with SPC, WHO and BPHN executives and member countries to develop global, regional, and national mutually agreed impact, outcome, and output-based indicators to measure effectiveness and for lessons learned through QIP cycle.