Medical Device Service Procedures: Mobile Application

Jean Ngoie, CEng, MinstMC, Head of Instrumentation & Clinical Engineering, Medical Physics, NHS Tayside, Scotland
Kelsea Tomaino, B.A.Sc Candidate, Biomedical Engineering, University of Waterloo, Ontario, Canada

Abstract

Globally, medical device used in healthcare setting is designed by the same manufacturers. However, the delivery of service varies from one institution to another. To guarantee consistency and effectiveness in the delivery of Clinical Engineering services across all hospital sites of the organization, a combination of the WHO guidelines, Clinical Engineering Standards of Practice for Canada (CESOP), ISO 9001, ISO 13485 and manufacturers service procedures were used to produce a set of general standards operating procedures (SOP’s), as well as specific device procedures and checklists that allows clinical engineering to perform its duties in the same way.

A mobile application was then created to facilitate access of procedures and all related documentation on the go. Also to be used as an audit tool to monitor technologists compliance with the use of procedures and checklists.

To overcome the issue of supportability that is being imposed on Healthcare institutions by some manufacturers. This application is to be shared with our colleagues including those in the developing countries. To allow them to standardize their procedures, better manage new equipment, perform diagnostics and basic services, while following comprehensive procedures that have been designed and validated by peers.

Introduction

Most Clinical Engineering departments in modern healthcare institutions are currently submitted to a rigorous assessment process by peers, accreditation bodies or regulatory assessors to evaluate the effectiveness and the efficacy of the service delivered to clinical users and patients. In this paper we looked at how Clinical Engineering Departments are taking advantage of modern technology to standardize the service, addressing the negative trend related to restricted access of information, training and in-house support by some original equipment manufacturers (OEMs) and vendors, reducing non-conformities from regulatory bodies as part of quality Management Standards (QMS) and improving patient safety.

In preparation for the peer review, the Clinical Engineering department at Niagara Health, Ontario, Canada saw a need for quality improvement. CESOP was identified as the QMS of choice. A Procedure Writing Committee was formed to facilitate the creation, validation and implementation of both general and specific device procedures.

In this paper, we discuss how the choice of a standard of reference, the implementation of QMS principles, combined with the use of mobile application can allow any Clinical Engineering Department to improve patient safety and increase quality and efficiency by using standardized procedures.

Methods

In total fifteen general procedures have been implemented for the Clinical Engineering QMS as of December 2019. When a need is identified, additional general procedures can be written following the same format and complying with the same standards.

Fifty-nine specific medical device procedures and checklists have been approved or are in the process of being approved. The QMS has proven to be successful. This is seen through the KPIs as we have been able to consistently meet our monthly PM goals. There has been an improvement in productivity levels across the department.

In the near future, this app will be developed with the capability of performing internal audits, while acting as a depository for all Clinical Engineering quality management documents. This will be done by tracking how often certain checklists are completed and the time it takes to complete them. The aim is to be able to publish both mobile applications so they can be shared with other healthcare organizations.

Two Canadian hospitals are currently trying the app to see if it will meet their needs. Mulago Hospital Biomedical Engineering department in Kampala, Uganda is currently using the app to perform their services.

Results

Conclusion

The Clinical Engineering QMS is an integral part of departmental operations. Regardless of the size of the organization, this system enables consistency in service delivery, improves efficiency and guarantees that a certain standard of work is always met. The long term goal is to create a harmonized QMS that any healthcare organization worldwide can adopt and implement. Also to provide those with minimum resources a tool to enhance their services at no cost.

For economic reasons, some vendors and OEM’s are becoming barrier to in-house support of healthcare technology. To enable dynamic efficiencies and enhance patient safety, Clinical Engineering should be open to a variety of mobile applications and mobile applications will continue to allow us to find better ways to standardize services, improve collaboration and work effectively and efficiently.

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References


Contact

Jean Ngoie, Medical Physics, NHS Tayside, Dundee, DD1 9SY
Email: Jean.ngoie@nhs.net
Website: jeanngoie@outlook.com