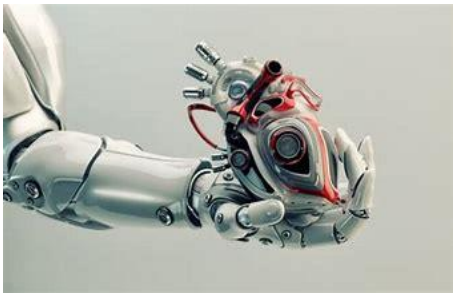
Clinical Engineering Management



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Clinical Engineering Management

Focused on advances that improve patient health, long-term and safe operation of clinical equipment is principal to success in healthcare operations. When setting up a Clinical Engineering (CE) department in a healthcare facility I focus first on the quality of patient outcomes desired and evaluate the steps and procedures that contribute both positively and negatively to those outcomes. Because CE is responsible for the performance of the actual devices, medical professionals use to provide healthcare, it is important to use outcome-based analysis to find the straightest, most effective line of events possible from initial service to final outcome.

Policies and procedures dedicated to repairs and maintenance on medical devices must meet the strictest of standards and the system governing and tracking those best practices has to be robust. Any given healthcare organization may have literally thousands of medical devices in regular use. Each of those devices must have individual usage and repair histories. There can be no exceptions to this rule.

During accreditation, an inspector may randomly pic several devices and ask for their specific histories. Failure to have the requested documentation available upon request could cause a facility to lose accreditation or, at the vary least marginalize it with exceptions. A computerized maintenance management system (CMMS) is vital to managing a CE department. Everything to do with the useful life of a medical device in a healthcare facility is to be documented in the CMMS. From serial numbers and individual identifiers, to best practice tasks and procedures must be catalogued and archived in the system.

The details of every task and procedure must be documented for every device to include, at a minimum, the following:

- Serial Number
- Equipment type and use
- Technician assigned
- Procedure type
    - Preventative Maintenance
    - Scheduled Maintenance
    - Corrective Maintenance
- Parts replaced
- Failure code if the event is due to a failure. (What went wrong)
- Cause of failure. (User error, MFG defect, Abuse, etc.)
- Consequence of failure, this can be anything from innocuous to the death of a patient.
- Date out of service
- Date returned to service
- Post procedural test outcome and technician certification of proper functionality
- Evaluate and provide in-house, shared service, vendor, or third-party medical device support
- Provide analysis of labor needs against service demand
- Identify and reduce unnecessary or surplus equipment
- Review and prolong equipment life cycles
- Assess time and cost-saving technology options
- Lower overall equipment maintenance costs while meeting industry standards
- Balance and negotiate equipment service contracts to maximize manufacturer support and in-house care
- Adjust service cost components to improve quality and operational efficiency
- Manage RFP/RFI processes when switching to a new service provider

Liability avoidance provided by the CE department is truly incalculable, making the operating cost of a well-run program worth the investment. Accordingly, administrators know that a lot of money is spent on equipment and service. Having said that, at times, they may not know exactly how much they are spending on CE maintenance or why. Savings must be found through eliminating inefficiencies, avoiding missteps and ill-conceived decisions, not in shortcutting sound core practices. Because my approach to setting up a CE department is outcome based, I make sure all of the operating parameters needed to maintain the assigned workload are in place, and that they meet all regulatory requirements. Once those essentials are met, I can look for and eliminate whatever doesn't work. By

doing so the organization can counter poor and expensive decisions brought on by expediency without compromising the efficacy of the department.

For example, service contract management for clinical/medical devices should be centralized. Without strong leadership in CE, or if the CE department is not in charge of vetting and setting up service contracts, when they are needed, Clinical Directors are likely pursuing their own contracts for service on CT, MRI, ultrasound, and other diagnostic imaging equipment. I have seen instances where surgery departments have independently contracted out for anesthesia equipment. If service contract cost data is not centrally tracked, there is no way anybody can effectively manage them. This will cost additional time, material, and money. Different clinical departments creating relationships with different vendors can only dilute the hospital's purchasing power and unnecessarily increase cost.

The determination for the necessity to use an outside service contract should not be made by clinicians, but by a CE professional. If such contracts are deemed necessary, a centralized approach should be taken. Centralized management ensures that you will pay less and have a much more accurate picture of costs.