

Towards a Safety-based FMEA decision support for maintenance of Critical Medical equipment

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Medical equipment failures are leading the causes of medical errors during therapeutic or diagnostic operations, significantly compromising patient safety. The related errors are the leading cause of death and injuries among hospitalized patients. However, healthcare facilities retain numerous medical equipment which exhibits divergent operational and maintenance characteristics such as failure frequency, downtime, presence of redundant units and failure detection, which inherently compounds these challenges. There is a need to identify, evaluate and prioritize critical medical equipment and their respective failure modes, incorporating patient safety as one of the criteria for ranking the failure modes to address the impact of failure and downtime on patient safety.

This research provides some preliminary results of a study developing a novel Health Impact Failure Mode and Effect Analysis (Hi-FMEA) methodology, incorporating patient safety as one of the critical criteria to prioritize the failure modes.