

APPLICATION OF FAILURE MODE AND EFFECTS ANALYSIS TO IMPROVE AUTOMATED DISPENSING CABINETS' DRUG STOCK MANAGEMENT PROCESSES

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BACKGROUND AND IMPORTANCE

Logistics processes for drug stock management are critical in the organization of pharmacy services.

Automated dispensing cabinets (ADCs) allow for better control of these processes, increasing patient safety, optimizing drug consumption and costs.

However, the use of these devices is not always the most appropriate, compromising its advantages.

MATERIAL AND METHODS

A multidisciplinary team was established to perform an analysis using FMEA methodology (pharmacists, nurses, and pharmacy technicians).

They defined all related failure modes that could occur, indicating causes and consequences through brainstorming meetings.

Five risk maps were performed on the following processes:

- Resupply of ADCs
- In floor return of drugs to ADCs
- Restock of temporary transfer cabinets
- Review of drugs expiration date
- Drug dispensing through ADCs

The risk priority number (RPN) was calculated according to the following indices:

Severity x Frequency x Detectability
values 1-10 to each index.

Median RPN values were used to prioritize. Preventive and corrective actions were proposed.

AIM AND OBJECTIVES

To carry out a failure mode and effects analysis (FMEA) to optimize the use of ADCs by all stakeholders (pharmacists, pharmacy technicians and nurses).

RESULTS

5 risk maps, 27 failure modes were defined:

Total RPN values: 3553 (range 3-300)

Highest median RPN value:
Drug dispensing through ADCs (192, 126-246)

Number of failure modes with RPN >200: 6

Analysis and prioritization

Action plan based on Good Practices ISMP guidelines:

- ADCs usage training program for nurses
- Reception plan for pharmacy technicians
- ADCs setup and stock review by pharmacists

Analysis after 6 months

All failure modes evaluated scored RPN < 200

CONCLUSIONS AND RELEVANCE

- ❑ The FMEA methodology allowed us to detect and evaluate failure modes and its effects, implementing an action to optimize the use of ADCs.
- ❑ In the future, a survey among sanitary professionals will be carried out to analyze the impact of these actions.

REFERENCES AND ACKNOWLEDGEMENTS

- Institute for Safe Medication Practices (ISMP). ISMP Guidelines for the Safe Use of Automated Dispensing Cabinets. ISMP; 2019.