APPLICATION OF HAZARD VULNERABILITY ANALYSIS TO EVALUATE POTENTIAL RISKS OF PHARMACY COMPOUNDING

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Background

Hazard Vulnerability Analysis (HVA) is a method that provides a systematic approach to identify the hazard and the direct and indirect effects that they have on the hospital pharmacy.

Purpose

The objective of this study was to identify the phases at greatest risks, to find solutions to reduce the risk level and to enhance patient safety

Material and Methods

We have adapted this method to all the stages of drug compounding. We have analyzed 45 different events concerning the preparations of drugs. For each process, a score of 0 to 3, was assigned for the following items:
- Probability of the event happening;
- Magnitude of impact divided into: Human impact (probability of death or injury); Property impact (physical losses and damages) and Business impact (interruption of services);
- Mitigation factors divided into: Preplanning, internal response and external response.

The severity of the event determined using the difference between the magnitude of impact and the degree of mitigation. The risk was obtained by multiplaying the probability by the severity.

EVENT	PROBABILITY	SEVERITY = (MAGNITUDE – MITIGATION)						RISK
		HUMAN IMPACT	**PROPERTY IMPACT**	**BUSINESS IMPACT**	PREPARED-NESS	INTERNAL RESPONSE	EXTERNAL RESPONSE	
		Possibility of death or injury	Physical losses and damages	Interruption of Services	Preplanning	Time, Resources	Mutual aid Staff	
SCORE	0 = N/A 1 = Low 2 = Moderate 3 = High	0 = N/A 1 = Low 2 = Moderate 3 = High	0 = N/A 1 = Low 2 = Moderate 3 = High	0 = N/A 1 = Low 2 = Moderate 3 = High	0 = N/A 1 = High 2 = Moderate 3 = Low or none	0 = N/A 1 = High 2 = Moderate 3 = Low or none	0 = N/A 1 = High 2 = Moderate 3 = Low or none	0 – 100%

RISK = PROBABILITY x SEVERITY

Results

Only 6/45 (13,3%) of all phases showed a risk of more than 50%.

The risk due incorrect labeling was 56%.

The risk related to the error in the choice of the solvent to be used was 52%.

The risk related to the preparation of the drug that caused allergy to the patient noted in the electronic medical record was 56%.

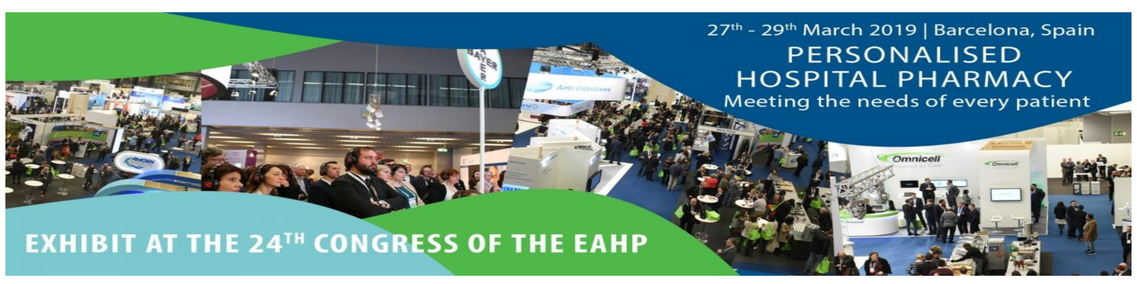
The risk of wrong quantity of drug prepared was 67%.

The risk related to the lack of prescription and, consequently, preparation made after a doctor’s call, was 52%.

The risk due to the preparation of the drug that caused interactions with other drugs administered to the patient was 52%.

Conclusions

Based on these results, we have identified some solutions to reduce the risk: the double check carried out by two different people could solve the risk due incorrect labeling; the software used by pharmacist can be improved to reduce the risk related to the patients' allergy or cross-reaction. Finally, errors can be reduced through clearer and specific sessions of training for the compounders.



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