

APPLICATION OF HAZARD VULNERABILITY ANALYSIS TO EVALUATE THE RISK LEVEL OF MEDICINE SHORTAGES

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Background

Drugs shortages have become a worldwide phenomenon, which present repercussions on patient care and on the hospital's budget.

Objectives

The aim of our study was to **assess the risk of shortage of drugs included in our Hospital Therapeutic Formulary (HTF)**, for which there is shortage reporting, using a **Hazard Vulnerability Analysis (HVA)**.

Material and methods

We performed an HVA on **43 drugs present in our HTF**, which were also included in **the Italian Medicines Agency list on the shortages**. The HVA used to assign the **Risk Of Shortage (ROS)** included three macro-areas: **probability** that the shortages will occur based on shortage in the last two years, **magnitude factors** which increase the risk of shortage and **mitigation factors** which reduce it.

It was assigned a **score 0-2** based on **previous shortages**.

Probability

- relevance of **active substance**;
- **budget impact**;
- percentage of **patients treated**.

Higher score was assigned for increasing severity values.

Magnitude factors

- **therapeutic alternative**;
- **stock available**;
- **import** of drug.

For each of these items a **score 0-3** was assigned. Higher score was assigned in relation to mitigation reduction.

Mitigation factors

The **value of the risk** was calculated multiplying the percentage of probability (**P**) and the percentage of severity (**S**).

According to the score obtained, **three classes of ROS** were assigned: **low (<30%)**; **medium (30-60%)** and **high (>60%)**.

Results

No drug was found to be at high risk of shortage (> 60%), 32/43 (74.4%) were at low risk of shortage, 11/43 (25.6%) were at medium risk of shortage.



The drugs at medium risk of shortage had previously been lacking; 6/11 had the same active ingredient as a therapeutic alternative, 3/11 had a different active ingredient as an alternative, while 2/11 had no alternative.

Conclusion

The HVA is an important method to assess the ROS and implement targeted strategies for drugs at risk of shortages. The knowledge of the risk level facilitates the timeliness of the interventions to resolve the shortages themselves.