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2SPD-024 SHORTAGES OF MEDICINES IN HOSPITAL: RESULTS OF A SURVEY ON THE PERCEPTION OF HEALTH WORKERS IN THE WARDS VSV REAL WORLD

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Background and importance Medicine shortages in Italy are an increasing phenomenon with significant impact on clinical activity.

Aim and objectives The aim of the study was to analyse the phenomenon, creating monitoring methods that can support the health workers (HW) involved in the problem.

Material and methods The hospital pharmacy (HP) developed a survey for HW, aimed at determining which types of drugs are most subject to unavailability, incidence and average duration of the phenomenon, approach used in managing any criticality and the impact on clinical practice.

Results A total of 59 HW from 14 different departments were interviewed. The classes of drugs reported most were: antibiotics (38.0%), corticosteroids (10.6%), gastroprotectors (8.8%), antihypertensives (7.1%), benzodiazepines and psychostimulants (5.2%), nutritional agents (4.4%), antihistamines (4.4%), blood products (3.5%), biologicals (2.6%) and others (14.8%). In 88% of the shortages, at least one medicine in the reference period (12 months) was reported, with an average duration of 2–8 weeks. Thirty-four per cent of respondents stated that the shortage of drugs had a negative impact—namely, the effect was perceived as very relevant in 5.9% of reporter cases since HW had to wait for the Italian Medicines Agency *Nulla Osta* for parallel importation; and relevant in 41.2% of cases, as HW had to wait for the HP to obtain supplies. In the remaining 52.9%, the impact was judged to be minor due to the presence of alternative therapeutic solutions. Specifically, in 11.4% of cases, a generic medicine was prescribed, based on the same active substance (AS) but with a different pharmaceutical form (8.6%) or different dosage (14.3%), and in the remaining 65.7% a medicine contained a different AS. The 17% of HW stated that the deficiency had never been solved, as in the case of oxacillin 1 g vials, ceftazidime 2 g vials, lysine acetylsalicylate 500 mg vials and danazol 200 mg tablets.

Conclusion and relevance The data collected confirm that the phenomenon of shortages is growing, highlighting the classes of medicines that are to be monitored to prevent the phenomenon. The tool used may be useful for improvement of the activity and efficiency of HP, with the aim of reducing the negative effects on daily clinical activity through constant comparisons between HW and HP.

REFERENCES AND/OR ACKNOWLEDGEMENTS

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2SPD-025 APPLICATION OF HAZARD VULNERABILITY ANALYSIS TO EVALUATE THE RISK LEVEL OF MEDICINE SHORTAGES

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Background and importance Drug shortages have become a worldwide phenomenon which has repercussions on patient care and on the hospital's budget.

Aim and objectives The aim of our study was to assess the risk of shortages 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 in our HTF, which were also included in the Italian Medicines Agency list of shortages. The HVA used to assign the risk of shortage (ROS) included three macro areas: probability that the shortages will occur based on shortages in the past 2 years; magnitude factors which increase the risk of shortages; and mitigation factors which reduce it. Probability was assigned a score from 0 to 2 based on previous shortages.

Magnitude factors were relevance of active substance; budget impact; and percentage of patients treated. Mitigation factors were: therapeutic alternative; stock availability; and import of drug. For each of these items a score from 0 to 3 was assigned. For magnitude factors, a higher score was assigned for increasing severity values. In contrast, for mitigation factors, a higher score was assigned in relation to mitigation reduction. 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 and 11/43 (25.6%) were at medium risk of shortage. The latter 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 and relevance The HVA is an important method to assess the ROS and implement targeted strategies for drugs at risk of shortages. Knowledge of the risk level facilitates the timeliness of the interventions to resolve the shortages themselves.

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No conflict of interest.

2SPD-026 MANAGEMENT OF DRUG SHORTAGES

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Background and importance Drug shortages (DS) are a current global health issue facing pharmacists, prescribers and patients. To deal with DS, pharmacists are forced to resort to different

suppliers and manufacturers, or to seek supplies abroad, in order to guarantee treatment of patients.

Aim and objectives To analyse DS that affected a second level hospital over 1 year (March 2018 to March 2019) and to describe measures taken by the hospital pharmacist to deal with them.

Material and methods This was a descriptive, observational, retrospective study of DS over a 1 year period. A list of all DS that affected our hospital was obtained from the Spanish Agency for Medicines and Health Products (AEMPS) webpage and from calling laboratories when medications were delayed. Variables collected were: drugs involved, therapeutic group according to the anatomic, therapeutic, chemical (ATC) classification system and pharmaceutical actions to solve DS.

Results During the study period, 172 DS affected our hospital. Eight (4.7%) were not notified to the AEMPS. According to the ATC classification system, the main groups affected were: antimetabolites (7%; ATC-L01B), corticosteroids for systemic use (4.7%; ATC-H02A), antiarrhythmics, classes I and III (4.1%; ATC-C01B), antipsychotics (2.9%; ATC-N05A) and all other therapeutic products (2.9%; ATC-V03A). The strategies for management of these DS were changing the supplier (37.8%), buying a different packaging (11%), foreign medicine importation through AEMPS authorisation (8.7%), using a therapeutic alternative (4.1%), restricting use of available stock according to clinical criteria (2.9%) and performing a magistral formula (1.2%). In the remaining 34.3% of cases, no action was needed.

Conclusion and relevance Currently, we are forced to deal with a large number of DS. Antimetabolites, systemic corticosteroids and class I and III antiarrhythmics were the main ATC groups affected. In most cases, it was possible to change laboratory and change the packaging. DS affect every level of the healthcare system, compromising standards of care. Because of this, it is important to coordinate different health services in order to take adequate measures to face shortages, without risking patient safety.

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2SPD-027 ECONOMIC IMPACT OF DRUG SHORTAGES

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Background and importance Drug shortages is an international problem, which is increasingly frequent, and has a huge impact on healthcare systems.

Aim and objectives To quantify the economic implications of drug shortages in acute care hospitals.

Material and methods A retrospective descriptive study was conducted from January 2018 to March 2019. Shortages were defined as shortcomings in the supply of a medicinal product that affected the patient's ability to access the required treatment in due time. Costs from management of drug shortages were calculated as the difference between the acquisition cost of the original medicine immediately prior to its start and the alternative drug (bought from compounding pharmacies when raw material was available or temporarily imported when it was still available in other countries in the EU).

Abstract 2SPD-027 Table 1 Drugs involved in shortages

Drug	Total cost (€)
Piperacillin/tazobactam injection 4/0.5 g	47 590.40
Alprostadil injection 20 µg	15 815.80
Dexchlorpheniramine injection 5 mg	10 632.80
BCG strain Tice 2–8 × 10^8 UFC intravesical	5427.29
Phytomenadione injection 10 mg	5335.50
Magnesium sulphate injection 1.5 g	2828.40
Clorazepate dipotassium injection 20 mg	1393.60
Metoclopramide injection 10 mg	1248.00
Sodium Chloride injection 20% 10 mL	650.00
Doxycycline injection 100 mg	568.50
Isoniazid/pyrazinamide/rifampicin 50/300/120 mg tablets	60.84

Results During the study period, 11 medicines were involved in drug shortages (table 1).

There were 19 new suppliers: 5 were compounding pharmacies and 14 were international manufacturers. An alternative drug with the same active substance was imported in all cases but 1, dexchlorpheniramine injection 5 mg, which was switched to an equivalent drug (chlorpheniramine injection 10 mg).

All alternatives caused an increase in the price of acquisition compared with the original medicine, except for two (intravesical BCG and one of the alprostadil suppliers), where the price remained unaltered. The average increase in price was 4.28€ per unit (range 0–25€) which represented an average increase of 409.2%.

Total cost of purchases due to shortages was 91 551.13€ (79% accounting for the acquisition of three drugs: alprostadil, chlorpheniramine and piperacillin/tazobactam). This resulted in an increase of 67 607.19€ on the hypothetical price calculated from regular suppliers.

Conclusion and relevance The results suggest that shortages significantly increase the acquisition cost of pharmaceuticals in hospitals. Strategies to minimise the effects of drug shortages should be implemented.

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2SPD-028 REFERENCING A MIDLINE: HOW TO MAKE A CHOICE?

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Background and importance Midlines, peripheral venous catheters, allow prolonged administration of intravenous therapy to patients with low venous capital. It is essential to test them to limit further misuse or complications as part of the tendering procedure.

Aim and objectives To assess if two midlines met the expectations of medical teams and improved patient care.

Material and methods A prospective evaluation was done with Smartmidline (Vygon, G1) and ArrowMidline (Teleflex, G2) for 4 months. Midlines are given by name and placed in the operating room using a Seldinger technique.