has allowed the implementation of measures to ensure authenticity and a high level of traceability, providing greater patient safety.

Aim and objectives To assess the impact of the implementation of the falsified medicines directive 6 months after introducing the new legislation.

Material and methods Elaboration of a form (MS-Excel) with the purpose of systematising the data was performed. Of all products prescribed between 18 and 27 September 2019, products not covered by the requirement of a unique identifier code were excluded. The following parameters were analysed: presence of the unique identifier code, start time and end of code scan, and appearance of problems with the scanning procedure.

Results A total of 201 products were analysed. About 69% of the products had a unique identifier code. Of the products intended to be dispensed for outpatients, only 70% had a unique identifier. After reading 10 935 packages, it was found that, on average, reading of 12.9% of the products with a unique identifier code had at least one scanning issue. The average time for reading a unique identifier code was 9.5 s (includes connecting the software, verifying the safety device, positioning the packaging for the scan read and waiting for scan read confirmation).

Conclusion and relevance Six months after introducing the counterfeit medicines directive, about 31% of the products received in the hospital pharmacy did not have a unique identifier code. This includes products for outpatients where scanning at dispensing could be a relevant added value. Reading time of the unique identifier code represents around 29 working hours in 8 working days, or 0.5 ETC (7 hour working day). Implementation of this directive required investments in software, material and human resources, and the internal work procedures were also reorganised. Direct advantages for patient care are not yet evident as the unique identifier is still not fully implemented.

REFERENCES AND/OR ACKNOWLEDGEMENTS

Directive2011/61/EU of the European Parliament and of the Council from June 8, 2011, Official Journal of The EU.

No conflict of interest.

2SPD-018 FOUR YEAR STUDY OF DRUGS SHORTAGES IN TWO PUBLIC HOSPITALS

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Background and importance Drugs shortages are becoming a public health issue. Public hospitals are meant to buy drugs through purchasing groups which give relevant data on shortages.

Aim and objectives Data from two hospitals of different sizes and from different purchasing groups were compared to build a regional view of shortages.

Material and methods A 4 years retrospective study was carried out using data from a university hospital (3000 beds), from its purchasing group and from a public neighbouring hospital (1800 beds) of another purchasing group. Different indicators were calculated: unavailability profile (shortage; quota—quantitative or qualitative— limitation of delivery and issues), median duration and availability rate of an alternative drug. Data were then compared between the purchasing group and the university hospital, and between the hospitals, using the Student's t test.

Abstract 2SPD-018 Table 1

	Purchasing group	University hospital	Neighbouring hospital
No of unavailable drugs (rate of shortages; quotas; issues)	1016 (80.71%; 12.89%; 6.40%)	678 (80.38%; 18.88%; 0.74%)	620 (79.68%; 15.81%; 4.52%)
Median duration in weeks (shortages; quotas; issues)	4.71 (4.57; 8.28; 4.42)	8 (6,29; 19,21; 5,57)	7.64 (6,54; 11,57; 20,14)
Presence of an alternative drug (rate)	67.39%	33.19%	33.44%

Results Between the purchasing group and the university hospital, there were significant differences for each indicator ($p<0.0001$). Regarding the hospitals, there were only significant differences for the unavailability profile ($p<0.0001$) and median duration ($p=0.0405$).

Conclusion and relevance The significant differences regarding the unavailability profile may be due to the lack of common definitions on shortages. The behaviour of the manufacturers regarding the size of the hospital might be another reason as the mediation duration was different between the hospitals. Quotas were two times longer than regular shortages, but they put more strain on teams and led to the consideration of the ethical aspects of the dispensation.

REFERENCES AND/OR ACKNOWLEDGEMENTS

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2SPD-019 FOUR YEARS OF SHORTAGES REGARDING THE ANATOMIC, THERAPEUTIC AND CHEMICAL CLASSIFICATION

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Background and importance Drugs shortages are becoming more important. It is necessary to gather specific data in order to mitigate the effects.

Aim and objectives Data from a national purchasing group were analysed to build a national view of shortages and their evolution regarding therapeutic area.

Material and methods A 4 year retrospective study (1 June 2014 to 31 May 2018) was undertaken using data from a national purchasing group and consolidated with data from an adherent hospital. Different indicators were calculated using the anatomic, therapeutic and chemical (ATC) classification: unavailability profiles (shortage; quota—quantitative or qualitative—limitation of delivery; and issues), number of recurrences, median durations and unavailability rates (number of shortages divided by number of drugs available in an ATC class).

Results Each ATC class was studied (1305 drugs); 5 had the most impact (table 1).

A peak occurred in 2017 for all classes, except V class. In J class, there was a lack of penicillin combinations (seven drugs) in the first quarter of 2017, and at the end of the

Abstract 2SPD-019 Table 1

ATC class (No of occurrence; rate)	N class (278; 21.3%)	V class (232; 17.8%)	Antimicrobial agents J class (246; 18.9%)	Oncology L class (159; 12.2%)	Haematology B class (101; 7.7%)
Recurrence per year (2014; 2015; 2016; 2017; 2018)	134 (14; 23; 27; 46; 24)	190 (2; 67; 85; 28; 8)	130 (13; 11; 24; 61; 21)	93 (19; 10; 11; 46; 7)	51 (2; 4; 10; 31; 4)
Rate of shortages; quotas; issues	86.3%; 9%; 4.7%	97.8%; 0%; 2.2%	65.1%; 27.6%; 7.3%	83.7%; 13.2%; 3.1%	59.4%; 16.8%; 23.8%
Median duration (weeks)	4.57	3.79	5.29	4.43	3.79
Rate of unavailability (%)	9.2%	38.1%	17.7%	15.6%	8.4%

quarter there were shortages of third generation cephalosporins.

Conclusion and relevance All classes were affected. Rippling effects in J class may be assumed regarding the evolution of drug shortages. That may lead to worse consequences, such as antibiotic resistance or disruptions to patient care.

REFERENCES AND/OR ACKNOWLEDGEMENTS

No conflict of interest.

2SPD-020 IMPACT OF MEDICINE SHORTAGES ON AN OUTPATIENT CLINIC OF A GENERAL HOSPITAL

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Background and importance The incidence of medicine shortages (MS) has increased in the past few years, causing difficulties for clinicians, patients and regulators. MS can occur for many reasons, including manufacturing and quality problems, regulatory issues and business decisions. The role of the pharmacist is essential in their management.

Aim and objectives To analyse the MS that have affected the outpatient clinic (OC) between January 2018 and September 2019, and to evaluate their economic impact and effect on the daily work of a hospital pharmacist in a general hospital (280 beds).

Material and methods A descriptive, observational and retrospective study was carried out analysing data between January 2018 and September 2019. Data were retrieved from official notifications received by email, the Spanish Medicines Agency (AEMPS) online platform and the Farmatools programme. Variables collected were: drugs with shortage problems, medicines available through the application for management of medicines in special situations (AGMSE) of the AEMPS, MS emails received, orders of foreign medicines and dispensations and time dedicated to managing MS.

Results During the study period, 1162 emails about MS were received and revised (average 55 per month). Forty-seven drugs with shortage problems were available through AGMSE as foreign medicines and 39 of them (83%), corresponding to 31 active substances, were managed from the OC: 92.3% of drugs imported, 2.5% performed as magistral preparations and 5.1% dispensed from inpatient stock. A total of 122 medicine orders were done, 6 per month, resulting in a total cost increase of 7643.73€ .

According to Spanish law, foreign medicines must be provided by hospital pharmacies; therefore, 280 new outpatients who usually collect their medication at the community pharmacy attended the OC (a total of 739 dispensations, 35.19 per month).

The average time devoted to shortages in the OC was 10.13 hours per month, 5.15 hours for dispensation and pharmaceutical care activity and 4.85 hours for executing orders, and reception and administrative tasks.

Conclusion and relevance MS are time consuming and imply a significant increase in the hospital pharmacist's activity, mainly focused on administrative responsibilities, adding new drugs in formulary and planning for strategies to maintain the medication supply. Furthermore, this problem implies a higher number of patients attending the OC to collect their medication.

REFERENCES AND/OR ACKNOWLEDGEMENTS

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2SPD-021 SURVEY OF DRUG SHORTAGES IN HUNGARIAN HOSPITALS

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Background and importance Drug shortages pose an enormous challenge to healthcare systems globally. However, the data available are limited, as there are 53 surveys in the literature and only 54.7% (29) contain any information regarding the prevalence of drug supply issues.

Aim and objectives Our aim was to develop a questionnaire based on the available surveys and collect evidence of drug shortages in Hungarian hospitals.

Material and methods With an extensive literature search between 1 and 15 April 2019, we identified the relevant surveys and questionnaires, and then developed a Hungarian version with 45 questions categorised into 5 main sections: (1) institutional data and demographics; (2) prevalence and background; (3) management of drug shortages; (4) information sources; and (5) consequences of drug shortages. Data were collected between 15 May and 30 June 2019, with an online survey among hospital pharmacists.

Results A total of 42 hospital pharmacist completed the survey: 36 women and 6 men, mainly >36 years of age (73.8%), from various institutions and scope of activities. We found that 52.4% experienced drug shortages more than 10 times in the past 6 months. The top five ATC groups included B (blood and blood forming organs (52.4%)), C (cardiovascular system (50%)), L (antineoplastic and immunomodulating agents (47.6%)), J (anti-infectives for systemic use (38.1%)) and N (nervous system (38.1%)). Active pharmaceutical ingredients highlighted were immunoglobulins, digoxin, sodium ferric gluconate, phytomenadione, idarubicin and amoxicillin/clavulanic acid. Original and generic drugs, and parenteral and oral dosage forms were equally affected. According to 53.7% of participants, drug shortage situations usually lasted for months. The main reasons noted were