

of which 20% is wet AMD forces us to consider the need to revise our opinion of the sustainability of the treatment of the disease.

No conflict of interest.

### DSL-016 HOW WOULD PHYSICIANS AND NURSES HANDLE THE PROBLEM OF DRUG SHORTAGES?

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**Background** We have all experienced drug shortages for different reasons, such as licence withdrawals, lack of raw materials, etc. Following internal suggestions in cooperation with the Vienna Health Association an alteration list of drug changes was introduced as a standard process. This chart is updated daily and is posted on the opening intranet website of a 720-bed hospital.

**Purpose** To find out via a survey how health care professionals are affected by such drug supply interruptions, what ideas they have to reduce the harm to their patients, what suggestions and management they expect from the pharmacy and the manufacturer.

**Materials and Methods** This survey was done on different wards covering the following aspects:

- recognition level/benefit of the up-to-date drug changes list
- use/knowledge of various pharmaceutical services
- requests/solutions in the recurrent cases of certain drug shortages in our hospital.

**Results** 77 people (23 physicians and 54 nurses) answered the survey. Half of them were conscious of varying drug shortages (rating scale 0–5) being a worldwide problem. Only 50% recognised the data provided on the hospital in-house homepage.

The survey focused on proposals to cope with missing drugs. It noted two essential categories:

- importance of pharmaceutical services on the wards
- logistics: the responsibility manufacturers and the pharmacy to immediately inform them of drug shortages, optimal cooperation with other health care providers
- cooperation and teaching of the patient

**Conclusions** The ward staff are not at all aware of the worldwide drug shortages. The positive impact of the clinical pharmacy service was mentioned by nearly everyone.

No conflict of interest.

### DSL-017 IMPORTING MEDICINES – REVIEW OF FIVE YEARS IN A PORTUGUESE HOSPITAL

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**Background** The pharmaceutical market has always faced several constraints over the years. Nowadays, more than ever, drug shortages have reached critical levels in European countries. Importing medicines usually implies more paper work, different logistics, higher pricing and higher storage costs. Shortages occur not only because the medicine may be sold out but also because there is no marketing authorization. This may affect potentially all drug classes, raw materials and medical devices. Importation procedures in Portugal require annual authorization from the National Medicines' Agency. Rational and cost-effective procurement of medicines in foreign countries can be a challenge for hospital pharmacists.

**Purpose** The objective is to analyse, classify and evaluate the consumption and costs of medicines imported over the last five years.

**Materials and Methods** Retrospective analysis of the importation processes and records of imported medicines during the period of 2007 to 2012.

**Results** During the period of study 577 importation processes were developed (115 processes a year). About 80% of these medicines are recommended by the Portuguese National Hospital Pharmacy Formulary and the drug classes most involved were central nervous system, antimicrobial and cardiovascular drugs. The mean price per unit rose 1.2% since 2007. In 2012 suppliers are mainly industry/manufacturers while in 2007 there were wholesalers and legal representatives in Portugal. The process of procurement and regulatory issues regarding the importation takes about 14 pharmaceutical hours/week.

**Conclusions** Importation of medicines at the hospital level is today more often part of the daily tasks of pharmacists. Because the legal framework and logistics are different it is helpful if pharmacists have experience in this matter. The increase in the mean pricing of only 1.2% was possible specifically because intermediates in the supply chain were reduced.

No conflict of interest.

### DSL-018 OPTIMIZATION OF A DRUG REPACKAGING AREA THROUGH THE DEVELOPMENT OF A PROTOCOL IN A TERTIARY HOSPITAL

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**Background** The Pharmacy Service includes a unit dose medicines dispensing section. Drug repackaging consists of repackaging drugs which are not within the unit dose system. This process consumes much of the time of the pharmacy technician.

**Purpose** To establish a working protocol in the repackaging section and measure the work done in the area after the establishment thereof.

**Materials and Methods** We developed and distributed working protocols. Later, we distributed them to the technical personnel working exclusively in the repackaging area. We performed a prospective observational study (2011). The variables were: repackaging volume (total drugs repackaged, repackaged tablets/month, repackaged tablets/year), repackaging time (total repackaging time, lighting and heating time of the repackaging and cutting machine, repackaging and annotation time) and classification of drugs according to the expiry date.

**Results** The repackaging process steps set out in the protocol were: lighting the repackaging machine, medicines preparation, cleaning of the repackaging area. Completion of the quality control repackaging sheet. Repackaged drugs must be fully identified. The total volume of the repackaged drugs was 300, 39,498 tablets/month, 479,979 tablets/year, and the time devoted to packaging: cutting time 2 seconds, heating time of 2 seconds, cutting time 1 min/12 blisters, repackaging time 8.5 min/120 packs. 24% of the drugs had an expiry >3 years.

**Conclusions** Repackaging is 25% of the workload of the pharmacy technicians. The new system enables the staff to work more efficiently, decreasing the repackaging time with a high volume of drugs repackaged/year. The expiry date of the repackaged drugs must be extended in order to obtain a better use of resources.

No conflict of interest.

### DSL-019 OPTIMIZATION OF INFLIXIMAB USE CAN SAVE MONEY

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**Background** Intravenous mixtures with low physicochemical stability vials could generate economic loss by wasted medication in

the case of expensive drugs with individualised dosing if we treated only a few patients on different days. This is the case of infliximab.

**Purpose** The aim of this study was to retrospectively examine the pattern of utilisation in clinical practise (clustering patients at the same day of the week or not) and the saving costs associated with the optimization of infliximab use in the treatment of rheumatoid arthritis or Crohn's disease.

**Materials and Methods** We collected data of patients treated with infliximab during the first two months of 2012. We clustered patients by weeks, so we calculated the total weekly dose by adding the dose of each patient and total number of vials required of infliximab (clustering patients or not). Infliximab was given at dose of 3–5 mg/kg every 6–8 weeks. We calculated treatment costs between two alternatives.

**Results** Eighteen patients received at least one infliximab infusion during a selected observation period were studied. The mean infliximab dose administered to all the patients was  $342 \pm 80$  mg per patient. The number of vials used was 67, if we cluster patients, and 71 without cluster patients. Infliximab vial optimization allows us, for the whole year, to reduce the amount of vials from 486 to 458, with a significant saving of 13612€ by year.

**Conclusions** Clustering patients in a agreed day of week allows significant cost savings in the context of a regional hospital. The cost of treatment could be reduced by using infliximab vial optimization. These results could be applied for the vial optimization of some monoclonal antibodies and cytostatic agents.

No conflict of interest.

## DSL-020 PILOT STUDY OF THE CHANGES IN THE COST OF ADULT KIDNEY TRANSPLANT TREATMENT FOR PATIENTS IN BULGARIA

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**Background** There are several studies at the international level analysing the cost of immunosuppressive treatment of kidney transplant patients. In Bulgaria pharmacotherapy of kidney transplant patients is provided by the hospital pharmacy and therefore it is important to know the amount paid for immunosuppression by the hospital providing the treatment.

**Purpose** To analyse the changes in the cost of pharmacotherapy for kidney transplant patients in Bulgaria during the period 2006–2011.

**Materials and Methods** A prospective cost study of the changes in pharmacotherapy of all adult kidney transplant patients in Bulgaria during the specified period. An analysis of prescribing practise was performed, cost of pharmacotherapy was calculated. Descriptive statistics and t-test analysis were performed to evaluate the changes in the prescribing practise and the cost of pharmacotherapy.

**Results** In total 21 therapeutic schemes were found prescribed. The number of patients on treatment varied for each year of the observation period because of patients dropping out of treatment. The total observed population for the period was 589 individuals. Most often, the prescribed therapeutic scheme was ciclosporin + mycophenolate; in 38% to 39% of all cases. A slow increase in the average monthly costs of pharmacotherapy was observed for the period 2007–2009, after which the cost declined from 172 EUR to 138 EUR per patient per month in 2010–2011. Those variations are mostly due to changes of pharmacotherapy. During the period

2007–2009 two new substances were introduced, tacrolimus and everolimus, which led to the increase in prescribing costs. For the period 2010–2011 generic immunosuppressants were introduced and the prescribing costs declined. The drug costs of kidney transplantation vary between 17.43% and 30.66% of the hospital's drugs budget.

**Conclusions** To our knowledge this is the first Bulgarian study of prescribing practise and changes in the cost of drugs for kidney transplant patients. It reveals that prescribing costs are varying and dependent on the introduction of new molecules or generic products. The study shows that the introduction of the new immunosuppressive molecules leads to an increase in pharmacotherapy costs, while the introduction of generic products significantly reduces drug costs.

No conflict of interest.

## DSL-021 RISK ANALYSIS OF MEDICINES PRODUCED IN HOSPITAL PHARMACY – A TOOL FOR ENSURING OPTIMAL SUPPLY

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**Background** The hospital pharmacy unit for the preparation of licenced sterile medicines manufactures 110 different extemporaneous preparations and licenced medicines for injection or infusion. This unit needs a tool for production planning i.e. an assessment of which medicines are critical and hence must always be in stock.

**Purpose** To create a tool for risk assessments for all medicines manufactured in the unit, enabling appropriate prioritising of resources from a treatment perspective.

**Materials and Methods** All risk assessments are executed and stored in SAID (National question and answer database). The advantages of this method are that each risk assessment is quality assured and acts as a dynamic document that can be updated regularly.

Risk assessments are based on relevant literature (e.g. Summary of Product Characteristics and Micromedex).

For each risk assessment the following is examined as a minimum:

- Which patient group will benefit from the medicine?
- Therapeutic indications and administration
- Are there any alternative treatments?
- Does a synonymous/analogous medicine exist? Any safety concerns regarding method of administration? Can the manufacturers maintain the flow of supply?

Based on the above the risk assessments are allocated a score 1 to 5, which indicates the severity of a back order.

**Results** The risk assessments were distributed as follows:

- 18% scored 5 (no alternative medicine exists)
- 38% scored 4 (analogous medicine exists)
- 24% scored 3 (synonymous extemporaneous or non-licenced medicine exists)
- 9% scored 2 (synonymous medicine exists)
- 11% scored 1 (more than one analogue/synonym exists)

The risk assessments showed that none of the medicines could be dispensed from a treatment perspective. Shorter periods of back order of some medicines can be tolerated with no effect of patient care and safety, if alternative synonyms/analogous medicines are supplied from other manufacturers.

**Conclusions** Risk assessments have given the unit a tool for production planning and prioritising the manufacturing of medicines.

No conflict of interest.