Drug supply/logistics

Purpose To evaluate the impact of automation on medicines management at our duty pharmacy, and to determine its limits in order to improve them.

Materials and Methods We analysed the organisational aspects from the database of the ADDS deposited at the MVMTH duty pharmacy. The study lasted one year (2010). We also used a questionnaire completed at the end of the study period by the 12 Pharmacy Technicians (PharmTs) working at our hospital pharmacy (6 juniors with less than 5 years of professional experience and 6 seniors with more than 10 years of professional experience, all performing the same tasks during duty hours), in order to evaluate their view of automation.

Results

- 5444 transactions were accomplished (63% by juniors and 37% by seniors);
- injection forms were the most delivered (68%) followed by oral forms (29%);
- anti-inflammatories, analgesics and antispasmodics were the most required on duty hours (26%) followed by antibiotics and antiviral drugs (25%);
- according to PharmTs:

- the main advantages were:
    - saving time in locating medicines (≈83 minutes saved per week, reallocated to other tasks): 8 PharmTs;
    - limiting personal drug use: 5 PharmTs.

- the main constraints were:
    - the irregular machine resupply (poorly done or not done at all) by the technician on duty whose job it is to replenish drugs consumed during the previous day: 10 PharmTs;
    - the reduced capacity for storing all medicines, especially refrigerated and oversized ones: 6 PharmTs.

Conclusions The automated drug dispensing system offers many advantages. However, there are still things to improve concerning machine resupply, storage capacity and storage conditions before decentralisation to hospital services.

No conflict of interest.

DSL-014 **FINANCIAL EVALUATION OF THE SURPLUS GENERATED BY THE DISPENSING OF SUNITINIB IN THE LOCAL HEALTH SERVICE OF REGGIO EMILIA**

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Background Oral cancer treatment has revolutionised the approach to the disease, as invasive procedures are no longer required, and patients can continue their daily life with practical and psychological benefits.

Purpose To cheque whether the packaging of Sutent (sunitinib), an oral cancer drug monitored by the Italian Medicines Agency (AIFA), dispensed by two District Pharmaceutical Units (UFD) of the Local Health Service (LHS) of Reggio Emilia, is suitable in terms of dosage units, to ensure coverage of the treatment plan prescribed to cancer patients. The marketing packaging authorised contains 30 capsules.

Materials and Methods From September 2007 to September 2012, patients included in this study were dispensed Sutent at least once. We used the record of oncology drugs monitored closely by AIFA to obtain information about patients:

- number of prescriptions dispensed
- dose/day prescribed (e.g. 50 mg);
- total dose prescribed (e.g. 1400 mg);
- total dose dispensed (e.g. 1500 mg);

The total dose of medicine prescribed, corresponding to one treatment cycle (i.e. 28 capsules) is less than the total dose of drug dispensed, corresponding to 30 capsules. For each cycle, there is a predictable surplus of 2 capsules.

Results More was paid than was necessary, for surplus Sutent, reported for 31 patients.

The overall cost of treatment provided in the study period was €492,278. The excess Sutent capsules represent 6.67% of the total cost of treatment, i.e. €32,819.

Conclusions In order to save money, it would help to dispense to the patient the exact number of dosage units required by the prescription.

This idea is supported by an analysis of the savings made for Xeloda. All patients received the exact number of dosage units in all UFD of the LHS of Reggio Emilia. From January 2010 to June 2012 savings were made by the Health Authority of €57,602.

No conflict of interest.

DSL-015 **FINANCIAL IMPACT OF ANTI-VEGF IN OPHTHALMOLOGY**

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Background The use of drugs with active ingredients produced through genetic engineering is often associated with oncology, rheumatology, dermatology and gastroenterology treatment although today there is wider use in cardiology (canakimumab) for certain products for the treatment of ocular pathologies, with particular reference to the retinal pathologies.

Currently the active principles used in ophthalmology are ranibizumab, pegaptanib and bevacizumab. The first two active ingredients are marketed in syringes ready for intravitreal use, but bevacizumab does not have a formulation different from that for use in oncology.

Ranibizumab is a fragment derived from the immunised antibody bevacizumab that exerts its anti-neogenic and vascular permeability-reducing actions by blocking VEGF (endothelial growth factors) with particular reference to isoforms VEGF165, VEGF121 and VEGF110. It is able to penetrate all the layers of the retina and enter the subretinal space.

Purpose To evaluate the economic impact of anti-VEGF drugs on the budget of the ophthalmology department and the average cost of treatment with ranibizumab considering a series of patients treated for age-related macular degeneration (AMD) at the Ophthalmology department in the Paolo Giaccone Hospital, Palermo.

Materials and Methods The consumption data were obtained from the accounting system of the integrated Polyclinic company, data on doses were obtained from a selection of patients who have had treatment from one to four years, and data were extracted from the AIFA monitoring log for ophthalmic medicines.

Results During the years 2007 to 2011 the share of the budget absorbed by anti-VEGF increased from €58,375.1 (45% of annual expenditure) to 246,592.71 (84% of expenditure).

Given that the administration characteristics cannot be standardised we recorded the number of administrations for the patients treated.

8 patients that have been identified for a year's treatment received 3 to 4 administrations at an average cost per patient of Euro 4,023.25.

19 patients were treated for 2 years with average spending Euro 6,776 (4–9 doses) and a total cost 128,774 euros.

8 patients were treated for 3 years, average Euro 10,201.81 (6–13 doses) total expenditure Euro 81,614.5; Finally

5 patients were treated for 4 years, average Euro 13,334.2 (9–17 doses) total spending Euro 66,671.

It was possible to note that as the years of treatment increased the gap between of administrations widened.

Results In the near future the ageing population will increasingly request good treatment of AMD. The latest ISTAT data indicate an increase in population over the age of 65 years (18.5% of the population). Evaluating the incidence of AMD at 3.68% (EUREYE study)

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 repacking 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