c. All prescriptions signed
d. All prescriptions dated
e. Insulin delivery device specified

Results In 2010, adherence to the five key elements was only seen in 3% of prescriptions (n = 68), with an increase to 74% (n = 54) post-chart initiation in 2012 (P = 0.007). Ward-based clinical pharmacists were found to have specified the insulin device in 81% (n = 42) of those prescriptions incorporating a device.

Conclusions By incorporating the five key prescribing elements in a specifically designed insulin chart, a statistically significant improvement in insulin prescribing was seen. Individual pharmacists also demonstrated a significant contribution in improving prescribing safety of this high-risk medicine, with an ultimate reduction in error potential and decreased risk of patient harm.

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No conflict of interest.

GRP-102 INTEGRATION OF MEDICINES RECONCILIATION INTO AN ELECTRONIC PRESCRIBING PROGRAMME

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Background Reconciliation is the process of assessing a listing of the patients' previous medicines with the current prescription. Around 46% of medicines errors in hospitals are reconciliation errors.

Purpose To evaluate the effectiveness of a method of integrated medicines reconciliation in an electronic prescribing programme (EPP).

Materials and Methods Prospective study of 22 months.

Within 24 hours of admission, a nurse records the patient's usual medicines in the EPP.

The programme requires the doctor, before prescribing, to review the recorded home medicines. The programme suggests reconciliation for each drug, and the doctor must indicate if he accepts it. The home medicine automatically goes to the hospital prescription if the doctor accepts the suggestion, or he can suspend the drug or accept the therapeutic interchange that the programme offers him.

In the case of a drug that is not available in the hospital or for which there is no therapeutic equivalent, the doctor must decide if he suspends it or if he asks the patient to bring it from his home, in which case the medicine is sent to the Pharmacy department to repackage and dispense through a unit dose system.

All hospital beds were included in the study (450).

Results About 65% of the patients were on drug treatment when they were admitted to hospital.

- The average number of drugs per patient was 3.5.
- Home medicines reconciliation at admission was performed in 95% of patients admitted.
- We found only 9.6% of discrepancies: of which 91.4% were justified. Of the unjustified discrepancies: 7% were due to mistakes in the record of the home medicine or unregistered drug, 1.4% home of medicines were suspended without justification and there were 0.2% unjustified duplications.
- Reconciliation at discharge was only performed in 20% of the patients, since the programme does not yet require the doctor to do it.

Conclusions The implementation of medicines reconciliation in the EPP ensures it is done and reduces the discrepancies to 9.6%.

No conflict of interest.

GRP-103 INTEGRATION OF ORAL ANTICANCER DRUGS INTO STANDARDISED COMPUTERISED PHYSICIAN ORDER ENTRY SYSTEMS

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Background Oral anticancer drugs still contain some of the most critical issues in terms of right use and compliance. Patients need to be advised and guided concerning dosing schedules, risks and important supportive measures. Package sizes distributed by the pharmaceutical industry often contain more doses than one patient needs especially for short-term stays in the hospital.

Purpose Our goal was to dispense patient-individual unit doses of oral anticancer drugs based on individual computerised prescriptions.

Materials and Methods For this purpose we implemented evidence-based treatment regimens in the prescription software to prevent errors and support the use of standardised treatment plans. Additionally patient information leaflets were created. The first drugs to be computerised in this way were capecitabine and temozolomide.

Results Individualised dispensing of oral anticancer drugs allows more extensive pharmaceutical care of these patients. In view of the risks described above oral anticancer drugs have to undergo a pharmaceutical plausibility cheque and the amount has to be found suitable according to the treatment regime before dispensing. Moreover, the available instructions for use e.g. treatment schedules including supportive measures and the patient information brochure improve the information flow and the safe use.

Conclusions Due to the positive feedback from the operators we are extending the procedure to all oral anticancer drugs.

No conflict of interest.

GRP-104 INTERACTIONS BETWEEN MEDICINAL GASES AND OTHER MEDICINAL PRODUCTS: DEVELOPMENT OF A HOSPITAL DRUG DATABASE

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Background Deliberation no. 56/CD/2008 from the Portuguese Authority of Medicines and Health Products (INFARMED) approves the regulation of medicinal gases set out by Decree-Law no. 176/2006, which considers them as medicines for human use. This Deliberation addresses the manufacture, packaging, labelling, package leaflet, technical management, transportation, distribution, marketing, supply and home delivery of medicinal gases. In this context pharmacists play a proactive role by providing essential information about the proper use of these medicines.

Purpose To develop a database of medicinal gases that allows hospital pharmacists to detect medicinal gases/other medicinal product interactions and validate medical prescriptions in a quick, safe and effective way.

Materials and Methods Review of the summary of product characteristics (SPC) of all medicinal gases currently available in Portugal and consultation with the manufacturers of medicinal gases and analysis of responses. A literature review was also performed, through research and analysis of articles obtained from PubMed

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since January/2007 to September/2012, intersecting the terms 'medicinal gases' and 'medical gases'.

Results A total of 6 medicinal gases currently available in Portugal were analysed: medicinal air, nitric oxide, nitrous oxide, nitrous oxide/oxygen, oxygen and xenon. The main interactions of these gases with other medicinal products are: i) nitric oxide: oxygen, almitrine, nitroglycerin, sodium nitroprusside, phenylephrine, phosphodiesterase inhibitors, prilocaine, sulfonamides; ii) nitrous oxide: cyanocobalamin, drugs that depress the central nervous system (CNS), methotrexate; iii) oxygen: antiarrhythmics, bleomycin, chloroquine, chlorpromazine, corticosteroids, dactinomycin, doxorubicin, nitrofurantoin, phytomenadione, sympathomimetics; iv) xenon: antihypertensives, drugs that depress the CNS, other inhaled anaesthetic agents, sympathomimetics. No interactions were found with medicinal air. The database developed also describes the interaction mechanisms for each medicinal gas with each drug mentioned and the measures recommended to prevent major side effects.

Conclusions The database produced is a valuable tool for Portuguese hospital pharmacists who dispense medicinal gases, contributing to validating prescriptions for these medicines quickly and effectively.

No conflict of interest.

GRP-105 INTRODUCTION OF A MEDICINES RECONCILIATION PROGRAMME IN THE ORTHOPAEDIC SURGERY UNIT

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Background The average hospitalised patient is subject to at least one medicines error per day. More than 40% of medicines errors are believed to result from inadequate medicines reconciliation.

Purpose To investigate the introduction of a medicines reconciliation programme in the orthopaedic surgery unit.

Materials and Methods January 2010–March 2012. The patient selection criteria were ≥65 years old, home treatments ≥5 drugs and anticipated hospital stay ≥3 days. The reconciliation treatment was also performed for any other patients when requested by the doctor. Patients were found to be sensitive to the reconciliation by the pharmacist. Any Drug Related Problems (DRPs) detected were recorded and categorised. A prescription was given with the home treatment, with the aim of continuing treatment, discontinuing it or performing a therapeutic exchange. The process ended with oral and written pharmacotherapeutic information on the day of discharge.

Results Medicines reconciliation was carried out on 300 patients with an average age of 75.86, average stay of 9.57 days and distribution by gender 224 women (75%) and 76 men (25%).The number of medicines/patient was 6.57. During the prescription by the pharmacist, 1058 drugs were provided according to guidelines, 276 were suspended and in 663 cases a therapeutic exchange was performed. As regards the DRPs detected, 50 were caused on admittance and 15 at discharge. The DRPs were classified as follows: safety 51, effectiveness 10, adherence 2 and indication 2. Types of DRP: overdose 17, adverse reaction 4, need of extra treatment 6, unnecessary medicine 23, unsuitable drug 10, insufficient dosing 4, not dispensed 1. As to the seriousness of the DRPs: class 1: 5 patients didn't use the medicines that they needed; class 2, 24 patients used medicines that they didn't need; class 3, 23 patients used an erroneously chosen medicine; class 4,10 patients used an erroneously chosen medicine; class 5, 3 patients used a lower dose and/or a different dosage schedule from that required and/or don't continue treatment for the full duration of the treatment indicated, according to the Granada consensus of 1998.

Conclusions Participation of the pharmacist in the reconciliation of treatment allows DRPs to be detected at admission and discharge and educated the patient on his or her treatment at discharge from the hospital.

No conflict of interest.

GRP-106 INVOLVEMENT OF THE PHARMACY AND THERAPEUTICS COMMITTEE IN CLINICAL DECISION SUPPORT SYSTEMS FOCUSED ON ANTICOAGULANTS

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Background Adverse drug events related to anticoagulants are common and clinically significant. Computerized physician order entry (CPOE) and clinical decision support systems (CDSSs) are widely viewed as crucial for reducing prescribing errors.

Purpose To make prescriptions safer and to promote good practise, by developing CDSSs focused on oral and injectable anticoagulants.

Materials and Methods A review was carried out of existing guidelines and practise in the units.

About ten meetings with clinicians (cardiologists, thrombosis specialists) and pharmacists from the Pharmacy and Therapeutics Committee (PTC) were required to write these CDSSs.

The CDSSs were presented and tested in the cardiology units. New discussions and improvements in the CDSSs were made with prescribers, nurses and pharmacists.

The final CDSSs were validated by the Pharmacy and Therapeutics Committee (PTC).

Results Nine CDSSs had already been validated by the PTC: Vitamin K Antagonist (VKA), heparin sodium, heparin calcium, Low Molecular Weight Heparins (LMWHs) in prophylactic and curative treatment of deep-vein thrombosis and pulmonary embolism, LMWHs for acute coronary syndrome ST-segment elevation myocardial infarction and non-ST-segment elevation myocardial infarction, LMWHs for cardiac arrhythmia, and treatment of heparin-induced thrombocytopenia.

There are still regular meetings to develop CDSSs on new anticoagulants: dabigatran, rivaroxaban and apixaban.
Each CDSS provides:

- Information on the choice of a therapeutic strategy based on the indication and the clinical context.
- Usual doses and rates of administration.
- A dose calculation based on weight (heparins).
- Overrun alerts when the dose is exceeded.
- Regular laboratory tests at the recommended frequency.
- Protocols for dosage adjustments based on the biological values.
- Administration modalities for the nurses.

Since the implementation of the CDSS on VKA, annual fluindione prescriptions have decreased by 17% and annual warfarin prescriptions have increased by 53% in accordance with the recommendation to prescribe warfarin as the first-line oral anticoagulant.

Conclusions Development of CDSSs referred to by the CPOE system takes a lot of time but is a good way of disseminating PTC guidelines to all prescribers, pharmacists and nurses. CDSSs can assist clinicians in the management of patients requiring anticoagulant treatment by improving compliance with care standards. These CDSSs are updated following changes in guidelines and clinical practise. Other CDSSs focused on high-alert medicines will be introduced when computerised prescribing is implemented for the entire hospital.

No conflict of interest.

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