3 or more PIDs. 70.9% were psychotropic drugs. 53.7% of them were initiated by doctors working in our hospital, 86.4% of which by a senior doctor versus 13.6% by a resident.

Conclusions This study shows that a significant proportion of PIDs are initiated in our hospital. To improve practise, pharmacists have to make doctors aware of PIDs and suggest therapeutic alternatives before treatment is started. If PIDs are prescribed, pharmacists should formulate pharmaceutical interventions.

We will add this criterion to our trigger tool which selects high-risk prescriptions.

No conflict of interest.

GRP-099 INCIDENCE OF DRUG INTERACTIONS IN A CARDIOLOGY DEPARTMENT

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Background Starting in 2007, the Pharmacy Institute at Bajcsy-Zsilinszky Hospital in Budapest was the first healthcare institution in Hungary to use centralised medicines Daily Dose System (DDS).

The number of medicines administered to a patient may increase the probability of drug interactions. If physicians prescribe treatment without due foresight this may cause subsequent problems for the patient.

Purpose Pharmacists are the last cheque-point in the medicines system. The study sought to justify the importance of this by monitoring interactions.

Materials and Methods The incidence of theoretical and clinically relevant interactions was followed on the cardiology department at Bajcsy-Zsilinszky Hospital in a four-week period cross-sectional study. During this period, the drug treatment and the potential interactions were examined by using NovoHosp.win software.

Results A total of 218 patients were registered in the study, gender distribution of the sample: 100 women (46%) and 118 men (54%). A total of 1,893 drugs were prescribed, an average of 9 drugs per patient. The NovoHosp.win software found 603 interactions, which was an average of 3 interactions per patient. 174 patients had at least one possible interaction, but clinically relevant problems (increased APTT and INR values, potassium level differences and uric acid changes) had only arisen in 25 patients, 8 women (32%) and 17 men (68%). The software indicated 4 theoretical and 1 clinically relevant interactions in this patient group. The relevant interactions were classified as follows: potassium level differences 19%, uric acid changes 22%, APTT abnormalities 37%, changes in INR 22%.

Conclusions In the present study, 25 patients had 30 relevant interactions, as a result of which medicines were changed on 22 occasions. Changes in the dose, dose adjustments or drug substitution abolished the interactions. The study also demonstrates the importance of cooperation between hospital/clinical pharmacists and physicians.

No conflict of interest.

GRP-100 INCIDENCE OF ERRORS IN DRUG DOSAGE ACCORDING TO KIDNEY FUNCTION-ESTIMATING EQUATIONS IN MEDICAL INPATIENTS

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Background Inpatients frequently require dose adjustments of medicines due to acute changes in renal function. The FDA recommend adjusting medicines according to the estimated glomerular filtration obtained with the Cockcroft-Gault formula. However the Modification of Diet in Renal Disease (MDRD) study equation is widely recognised as more accurate than Cockcroft-Gault, which confuses clinicians because they do not know its utility for adjusting drug doses.

Purpose To compare the incidence in inpatients of medicine dosing errors depending on the type of equation used to estimate it: Cockcroft-Gault or MDRD.

Materials and Methods A cross-sectional study was conducted in a low complexity unit. Patients were included with impaired renal function who were not on haemodialysis.

We used the FDA guidelines to determine the incidence of errors.

Fisher's test was used to compare the groups, with statistical significance level <0.05.

Results We included 56 inpatients and 214 prescriptions. 58% were women and 68% were older than 65. We detected 42% and 28% of errors using CG and MDRD, respectively ($p = 0.014$). The most common error was an overdose (79%) followed by an underdose (12%) and contraindication (9%).

Further analysis found that the difference between the two equations occurred only in the following subgroups of patients: patients with mild to moderate impairment of renal function (38% versus 23%, $p = 0.03$), older than 65 years (51% versus 30%, $p = 0.01$) and low body weight (37% versus 31%, $p = 0.04$).The distribution of types of errors was similar in the three subgroups.

Conclusions The percentage of dosing error for both methods was similar to that reported in the literature.

The two equations were not discordant except in the elderly, in patients with low body weight and with mild renal dysfunction. This could explain why there were differences in the incidence of medicine errors in these subgroups.

In the absence of a gold standard to assess the acute deterioration of renal function and considering the limitations in estimating renal function with these equations, clinicians should include clinical judgement when determining the dose for each patient. The dose should be determined by weighing the risk of toxicity with higher doses versus the risk of treatment failure with lower doses, especially in elderly and low body weight patients.

No conflict of interest.

GRP-101 INSULIN: IMPROVING PRESCRIBING SAFETY

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Background Insulin has been defined as one of the highest risk medicines worldwide, [1] with a 2009 national UK audit demonstrating prescribing errors in 19.5% of in-patient insulin prescriptions. [2] The NPSA (National Patient Safety Agency) Rapid Response Report, issued in June 2010, further highlighted errors in the administration of insulin by clinical staff and called for immediate action to improve insulin prescribing. [2]

Purpose In 2010, an audit of insulin prescribing was conducted at North Bristol NHS Trust (NBT), using the Patient Safety First 'insulin prescription bundle' data collection tool that focused on five key safety-critical prescribing elements. [4] Following the results of the 2010 audit and NPSA alert, an insulin prescription chart was developed with the aim of significantly improving insulin prescribing.

Materials and Methods On 4th October 2012, the impact of the NBT insulin prescription chart was examined during a one-day cross-sectional audit (incorporating all specialities), using a special data collection form developed from the 'insulin prescription bundle'.[4] This incorporated five key audit standards:

a. All prescriptions written by brand name with the word *'insulin'* included
b. The word *'Units'* written in full

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