

## PHPI1

**EFFICIENCY IN DRUG PRESCRIPTION MEASURED BY THE APPLICATION OF ADJUSTED CLINICAL GROUPS IN FIVE SPANISH PRIMARY CARE CENTRES**

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**OBJECTIVES:** To measure the efficiency of pharmacy resources utilization in five Primary Care centres by the retrospective application of Adjusted Clinical Groups (ACG) in a usual clinical practice setting. **METHODS:** Retrospective study carried out on the basis of the clinical records from all the attended patients along the year 2006. Main variables: age, sex, case-mix/episodes, visits, pharmacy costs, centre, physician and service (Family Medicine or Pediatrics). ACG grouper (Starfield and Weiner, Johns Hopkins University, n = 106) classifies each patient in a unique category of similar resource consumption. A Receiver Operating Characteristics (ROC-area under the curve) analysis was done to assess the predictive value of the model. The Efficiency Index (EI) was obtained as the quotient between the observed and the expected pharmacy costs according to ACG distribution (indirect standardization). The statistical package SPSS was used ( $p < 0.05$ ). **RESULTS:** A total of 80,775 patients were included. Average number of episodes  $4.8 \pm 3.5$  and visits  $7.9 \pm 8.2$ ; mean age:  $40.7 \pm 22.9$  years; and 46.9% of males. Intensity of utilization: 72.4%. Costs of drug prescription: €22.7 millions (55.6% of the total costs). Mean cost was €281.05 ± 627.85. ROC curve analysis for episodes: 0.588 ( $p = 0.000$ ); sensibility: 37.3%, specificity: 73.1% and intra-class correlation coefficient C: 0.732 ( $p < 0.001$ ). The EI for each centre was respectively: 0.91 (CI: 0.78–1.04), 0.93 (CI: 0.77–1.09), 0.96 (CI: 0.81–1.11), 1.06 (CI: 0.95–1.17) and 1.07 (CI: 0.95–1.19),  $p < 0.0001$ . Furthermore, differences between family physicians and pediatricians were observed (range: 0.55–1.46),  $p < 0.0001$ . **CONCLUSION:** Results show a wide variability in the costs of pharmacy within centres and physicians. ACG provide an adjusted approximation to efficiency in pharmacy costs. Efficiency must not be considered as an isolated dimension of quality. The determination of the EI could lead to a better knowledge of the prescription profile from individual physicians and/or primary care teams.

## PHPI2

**RETROSPECTIVE DRUG UTILIZATION REVIEW: IMPACT OF PHARMACIST INTERVENTIONS ON PHYSICIAN PRESCRIBING**

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**OBJECTIVES:** To evaluate the impact of RDUR pharmacist's interventions on physician prescribing and the level of spill over effect on future prescriptions following the intervention. **METHODS:** A retrospective case-control study was conducted at a Pharmacy Benefit Manager using the available prescription data during April 2004 to August 2005. Pharmacy claims for two populations were run through the PBM's rules engine to identify conflicts. RDUR conflicts evaluated and intervened by a clinical pharmacist served as a case group whereas conflicts that were not evaluated and intervened by a clinical pharmacist served as a control group. The interventional spill over effect evaluates the rate of repetitive interventions that occur based on the total number of non-repetitive interventions. **RESULTS:** A total of 40,284 conflicts were identified in the case group and 13,044

conflicts in the control group. For cases, 32,780 interventions were considered non-repetitive and 529 were repetitive. There were 22,870 physicians in cases that received intervention letters and 2348 physicians in the control group that would have received intervention letters during the study period. Each physician received on average 1.4 interventions for cases versus 3.0 in controls. Among the case physicians who were intervened during the study period, 2.2% (505) were involved in a repeated intervention versus 18.2% (428) in controls ( $p < 0.001$ ), which is an eight fold difference. The most common conflict intervened on in cases was therapeutic appropriateness (8277, 25.3%) and for controls it was drug-drug interactions (1796, 25.4%). The interventional spill over effect in cases was 98.4% versus 89.4% in controls ( $p = 0.01$ ). **CONCLUSION:** RDUR is an effective interventional program which results in decreased number of interventions per physician and provides a significant impact on future prescribing habits.

## PHPI3

**THE COST OF WASTED MEDICINES IN PORTUGAL**

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**OBJECTIVES:** To identify the amount of medicines wasted in the Portuguese National Health System and related direct financial costs. **METHODS:** A community-pharmacy based study used two structured questionnaires to collect patient data at baseline and after a follow-up period. The first, administered by a pharmacist to first time users of any oral drug, intended to identify the length of prescribed treatment, posology and size of medicines packs. The second, developed for telephone interview and applied after the predicted length of treatment or at the end of the package (for chronic therapies). The total waste was related to: 1) inadequacy of medicines package sizes, or 2) lack of adherence to the prescribed treatment. SAS version 8.2 package was used. The average amount of wastage, was quantified and the 95% confidence intervals. A simulation study determined which package sizes would minimize the wastage due to prescription of inadequate package sizes. **RESULTS:** From September 2005 to 2006, 1601 patients with a mean age of 50 years were recruited. 68.6% were women. 2.098 Rx medicines were dispensed. An average of 21.7% of waste per pack [20.3%–23.2%] was identified. 9.7% was due to the inadequacy of drug pack sizes. The average wastage cost per medicine dispensed was 4.44 € [4.02 €–4.86 €], with 60.1% supported by the Portuguese National Health System. The simulation study showed that the wastage associated with the combination of Amoxicillin and Clavulanic Acid could be reduced by 1.3 pills per pack, on average, to 0.1 pills per pack, if a 12 units pack was available. **CONCLUSION:** Medicines waste due to inadequacy of pack sizes according to the proposed length of treatments was identified, with a simulation study showing that this could be minimized. Financial impact on the PNHS pharmaceutical expenditure seems to be relevant, deserving further attention and study.