

increase in the number of new chemical entities (NCEs) previously launched (1994-2002) - had higher increase in mean age at death, controlling for the effects of macroeconomic trends and overall changes in the healthcare system. **RESULTS:** The diseases for which more drugs were registered during the period 1994-2002 had larger increases in mean age at death during 2002-2010. The increase in mean age at death for "high-innovation diseases" (mean number of NCE 1994-2002 = 12.9) was 3.1 years, while 1.7 years for "low-innovation diseases" (mean number of NCE 1994-2002 = 3.9). Furthermore, our estimates indicate that about 1/3 of the total increase in longevity (i.e. 0.8 years) was due to NCE 1994-2002. Thus, pharmaceutical innovation increased mean age at death by 1.2 months per year. There were 106,242 deaths in Portugal in 2010. Hence the number of life-years gained in 2010 due to drugs registered during the period 1994-2002 was 84,994 (= 0.80 years \* 106,242 deaths). **CONCLUSIONS:** These findings demonstrate that pharmaceutical innovation brought significant health gains in Portugal in the past decade. Access to innovation is therefore crucial if society desires to maintain the positive momentum of longevity increase.

#### PHP132

##### THE ECONOMIC CONSEQUENCES OF THE USE OF ANTIBIOTICS IN BELGIUM

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**OBJECTIVES:** Antibiotic use outside hospital in Belgium is known to be one of the highest in Europe. This has aside an impact on resistance also an important economic burden. The aim of this study was to evaluate the potential savings that could be realized in case prescription behavior in Belgium would be similar to the Netherlands, a country known for its strict antibiotic use. **METHODS:** Current spending levels for antibiotics were determined in Belgium and the Netherlands. Volume and value sales were determined per country (average number of pills sold per capita) based on IMS Health Belgian National Retail Database available to IMS Health in both countries via the IMS MIDAS platform (2013 data). The potential country-level prescription cost in Belgium was estimated by multiplying average number of pills/person in the Netherlands, with the cost/pill in Belgium and extrapolating the result to the total population in Belgium, assuming that prescribing levels in Belgium were equal to those in the Netherlands and using Belgian prices. Also reasons for antibiotic use were checked in the IMS Longitudinal Patient Database. **RESULTS:** In Belgium the number of pills per capita was significantly higher compared to the Netherlands (12.66 vs. 5.93 pills/person). With a 30% smaller population than the Netherlands, spending in Belgium is 3 times higher. The estimated savings for the Belgian payer applying the usage (pill/person) of the Netherlands and current cost/pill in Belgium were €71.5 Mn. Reasons for antibiotics prescription in Belgium were mainly upper airway infections and bronchitis. **CONCLUSIONS:** By comparing Belgium's prescription patterns to the Netherlands, we estimated important potential savings due to antibiotics mis-use/over-use. The additional health and cost implications of antibiotics resistance were not taken into account. These savings could then be reinvested in covering innovative drugs.

#### PHP133

##### COST OF MULTIMORBIDITY: THE INFLUENCE OF AMBULATORY PHARMACEUTICAL AND HOSPITAL EXPENDITURE

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**OBJECTIVES:** The aim of this study is to analyze the impact of multimorbidity on ambulatory pharmaceutical cost and hospital cost. We use Clinical Risk Groups (CRG) for determining the multimorbidity. CRG is a classification system for risk adjustment which assigns each individual to risk groups based on chronic condition. **METHODS:** In a cross-sectional study we extracted the data of cost and comorbidity using CRGs from a data base of 156.811 people register with the health district of Denia, in eastern Spain, during 2013. Two OLS models were constructed for natural logarithm of the dependent variable of pharmaceutical and the other being hospital cost per patient respectively. Both models we take as independent variables the nine main health status of CRG. **RESULTS:** The ambulatory pharmaceutical cost represents 27.00% of the total expenditure. The CRG with the highest related ambulatory costs was CRG 7 (Dominant chronic disease in 3 or more organ systems (38.77%). The highest hospital costs were found to be in the groups of higher severity levels (8.Dominant and metastatic malignancies and 9.Catastrophic conditions), being 80.86% and 85.23% respectively. The statistical analysis showed a higher level of significance in the ambulatory pharmaceutical cost model: R squared of 58.8% versus the 12.8% in the hospital model. **CONCLUSIONS:** There is wide variability in the percentage of outpatient expenditure between the different status levels of the CRG. The explanatory capacity of the CRG is much higher when it is outpatient cost because patients suffering with chronic conditions are regular users of the Primary Care than of Hospital Care.

#### PHP134

##### HEALTHCARE EXPENDITURE ON PREVENTION IN THE SPENDING REVIEW ERA

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**OBJECTIVES:** To review evidence on cost-effectiveness of screening and vaccination programs currently funded in Italy, in order to develop a tool to appraise the efficiency of healthcare expenditure on prevention. **METHODS:** Cost-utility studies carried out in Italy between 1995 and 2014 were gathered through PubMed search engine. The following inclusion criteria were applied to the records retrieved: (i) Cost-Utility analysis; (ii) Italian setting; (iii) National Health Service Perspective; (iv) lifetime horizon; (v) intervention belonging to one of these clinical area: viral hepatitis, cancers, metabolic and cardiovascular diseases; infectious or respiratory disease. Prevention programs have been ordered in league tables. Mean and standard deviation of incremental values and ICERs reported in the selected studies

were utilized to simulate a Cost-Effectiveness Acceptability Curve of each clinical area and type of intervention i.e. screening or vaccination program. **RESULTS:** The cost-effectiveness function of prevention programs yield an ICER < € 30.000/QALY in 80% of realizations. Vaccines are the most efficient interventions, since they exhibit an ICER lower than treatments of the same clinical in more than 90% of simulations. **CONCLUSIONS:** Prevention programs typically require immediate investments yielding future health benefits. To acknowledge this peculiarity means to adopt not only a short (Vaccinations against influenza, chicken pox, measles), but also a medium (vaccination against zoster, genital warts, and tetanus) and long time horizon (screening of cancers and hepatitis) when assessing the efficiency of healthcare programs. Failure to reach the threshold of 5% of spending on prevention required by Italian national healthcare planning, is therefore to be understood as a form of rationing, rather than rationalization of healthcare resources.

#### PHP135

##### GENERAL ASSESSMENT OF UNLICENSED ANTINEOPLASTIC AND IMMUNOMODULATING MEDICINE USAGE SUBGROUPS IN TURKEY

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**OBJECTIVES:** The Turkish Medicines and Medical Devices Agency (TMMDA) gives permission of unlicensed medicine use by patient basis. Authorized wholesalers including Turkish Pharmacists' Association (TPA) can import the drugs based on the TMMDA's permission. These medicines are reimbursed by the Social Security Institution (SSI), the main reimbursement agency in Turkey Until 2014 when wholesalers were also authorized, pharmaceuticals under this status could only be imported by the Turkish Pharmacists' Association (TPA). The aim of this study is to understand the trends in L subgroups (Antineoplastic and immunomodulating agents) of ATC classification system unlicensed medicine consumption between 2011 and 2013 when the TPA was the only authorized supplier. **METHODS:** Consumption data of L sub-group in the top 100 imported unlicensed medicines with the highest sales share in total expenses of imported off-label use was taken from the TMMDA computer database. L01, L02, L03 and L04 were taken as subgroups. Descriptive analysis was conducted. **RESULTS:** The analysis showed that the L01 had the highest percentage of active ingredients among L subgroups with 67% share in all L group medicines. The percentage of L01 rose from 67% to 76% between 2011 and 2013. The consumption of L01 rose from 61 million TL to 230 million TL in the same period. L01 has the highest percentage of unit sales as well. **CONCLUSIONS:** The cost of imported medicines used in off-label use is increasing every year in Turkey. Some cost-containment measures (especially for L01-antineoplastic agents) should be taken to reduce the cost without risking patients' access to innovative medicines.

#### PHP136

##### AVOIDABLE HOSPITALIZATIONS DUE TO MEDICATION ERRORS IN BELGIUM

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**OBJECTIVES:** Medication errors are unintentional errors in how medicines are prescribed, dispensed, administered, or monitored while controlled by a healthcare professional, patient, or consumer. Leendertse et al (2008) reported that 5.6% of acute hospital admissions are medication-related, of which 46.5% were potentially preventable. This study estimated the costs related to medication errors that lead to avoidable hospitalizations in Belgium. **METHODS:** Based on the incidences from Leendertse et al (2008), the number of hospital admissions due to avoidable medication errors in Belgium was determined. The total avoidable costs attributable to medication errors was estimated, by multiplying the number of avoidable hospitalizations with the average cost of a hospital stay, calculated using the online official database of the Technical Cell (data from 2011). Costs were inflated to 2014. **RESULTS:** The estimated average cost of a hospital stay in Belgium was €4,886. Based on 2.6%, the incidence rate of total hospital admissions attributable to medication errors, 42,797 hospital admissions that could have been avoided due to medication errors were estimated. Avoiding these hospitalizations would produce potential savings of €209Mn per year. **CONCLUSIONS:** This study shows that the economic and health burden of preventable medication errors is high. As such, a synergic approach is warranted nationally and across national borders. This should entail communication and involvement from all different stakeholders (medical doctors, pharmacists, hospitals, national and international pharmacovigilance organizations) in the provision and delivery of care.

#### PHP137

##### DRUG PRICING INFORMATION MANAGEMENT: DEVELOPMENT OF A WEB BASED E-PRICING SYSTEM

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**OBJECTIVES:** Prior to February 2013, price management within Astellas Pharma Europe Ltd. was done manually using an Excel database. The system was labour intensive, slow to update, and prone to error. We developed an innovative web-based pricing information management system to address the shortcomings of the previous system. **METHODS:** A secure web-based system for submitting, reviewing and approving pricing requests was developed for use by 21 affiliates in 40 countries in Europe, Middle East and Africa. The aims of the new system were to: (i) reduce time/effort to approve price change requests; (ii) reduce the risk of using incorrect/unapproved prices; (iii) improve the visibility of pricing data to affiliates; (iv) improve approval process compliance. The system was designed to: track all pricing applications and approval status; update approved pricing information automatically; provide fixed and customisable reports of pricing