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## Costs of ownership of ready-to-administer pre-filled sterilized syringes in a Dutch hospital

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sensitivity analysis were done to assess the uncertainty around the parameters and the model. **RESULTS:** Results from the analysis show that in the base case, Rosuvastatin prevented more myocardial infarctions and yielded more QALYs. An ICER of \$21,595 (20991, 22199) was generated, which is not cost-effective for Uganda's WTP. In the deterministic sensitivity analysis, the ICER was most sensitive to the cost of Rosuvastatin. Probabilistic sensitivity analysis showed that the probability of Rosuvastatin being cost-effective at the current willingness to pay threshold is only 26%. **CONCLUSIONS:** Rosuvastatin is not Cost-effective in Uganda for primary prevention of myocardial infarction in HIV-positive patients. Its comparator in this analysis appears not to be cost-effective either. Given the limited local data and the big stretch on the data used in this analysis, these results are inconclusive. Future research needs to provide good quality local data on HIV/AIDS and cardiovascular disease co-morbidity.

#### PHP86

##### A MODEL TO PREDICT COSTS AND OUTCOMES ASSOCIATED WITH HYPERKALAEMIA IN PATIENTS WITH CHRONIC KIDNEY DISEASE OR HEART FAILURE

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**OBJECTIVES:** Hyperkalaemia (HK) increases the risk of major adverse cardiovascular events (MACE) and mortality. Patients with heart failure (HF) or chronic kidney disease (CKD) are susceptible to HK due to impaired renal function, older age, comorbidities, and concomitant medications. This study aimed to develop a novel cost-effectiveness model to estimate cost and health outcomes associated with effective HK management in HF or CKD. **METHODS:** A lifetime patient-level simulation was developed in Microsoft Excel. Disease progression was modelled in HF via progression through New York Heart Association (NYHA) classes and in CKD via continuous estimated glomerular filtration rate (eGFR) decline, leading to end-stage renal disease (ESRD). Time-dependent potassium (K+) trajectories were simulated utilising mixed-effects regression equations and linked to mortality, hospitalisation, MACE and changes in renin-angiotensin-aldosterone system inhibitor use via published risk ratios. Two hypothetical scenarios were evaluated from a UK payer perspective, independent of long-term K+ management costs: lifetime maintenance of normokalaemia (NK) compared to fluctuating K+ levels resulting in HK rates consistent with clinical practice. Published utilities and disease costs (2015) were applied and discounted at 3.5%. **RESULTS:** In patients aged 60 at baseline with CKD (eGFR=50 ml/min/1.73m<sup>2</sup>) predicted life expectancy (LE), quality-adjusted life years (QALYs) and total costs (TC) were 9.0 years, 6.7 QALYs and £69,606 in the NK group compared to 8.6 years, 6.3 QALYs and £65,231 in the HK group. Increased survival to ESRD drove higher estimated TC in the NK group. In patients aged 60 at baseline with HF (NYHA III) predicted LE, QALYs and TC were 7.8 years, 5.6 QALYs and £7,881 in the NK group and 5.9 years, 4.3 QALYs and £6,374 in the HK group, respectively. **CONCLUSIONS:** Optimising K+ management in CKD and HF patients has the potential to increase LE and QALYs, while influencing direct healthcare expenditure and allowing for an efficient use of resources.

#### PHP87

##### FACTORS CONTRIBUTING TO THE NATIONAL DRUG EXPENDITURE OF KOREA, 2010-2015: FOCUSING ON THE CORE THERAPEUTIC CLASSES

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**OBJECTIVES:** Korea's drug expenditure as a share of total health spending is 20.6%(OECD, 2016) and it is increasing by +1.7% CAGR(Compound Annual Growth Rate). The aims of this study were to explore the factors contributing to the growth of pharmaceutical expenditure and decompose the growth focusing on the core therapeutic classes. **METHODS:** From the National Health Insurance(NHI) Claims Data of year 2010 to 2015, eight core therapeutic classes were extracted - 1) anti-hypertensives, 2) anti-hyperlipidemics, 3) anti-infectives, 4) anti-diabetics, 5) anti-tumor and immune depressants, and drugs acting on the 6) nervous system, 7) genito urinary system and sex hormones, and 8) muscular system. Laspeyres' decomposition method which appraises the expenditure change caused by each contributing factor was used. The factors included were price effect, volume effect, entrance drug effect, existing drug effect, exiting drug effect, NHI coverage expansion effect, and cross effect. **RESULTS:** The drug expenditure of eight core therapeutic classes(80 billion dollars) has increased by 15.2% between 2010 and 2015. The factors contributed to the increase were entrance drug effect(+24.2%), volume effect(+20.3%), and NHI coverage expansion effect(+6.5%). On the other hand, price effect(-24.6%), existing drug effect(-3.4%), and exiting drug effect(-2.2%) have led to the decrease of drug expenditure. The entrance drug effect was significant for anti-diabetics, anti-tumor and immune depressants and anti-hypertensive drugs while substantial volume effects were observed for the drugs acting on the genito urinary system and sex hormones and anti-tumor and immune depressant drugs. **CONCLUSIONS:** Although price effect has contributed to the substantial decrease of Korea's drug expenditure, the total pharmaceutical expenditure has increased because entrance drug effect and volume effect were large enough to offset the price effect. Therefore, to control Korea's pharmaceutical expenditure, policies for monitoring the price of new drugs and managing the volume of drug utilization are required.

#### PHP88

##### COSTS OF OWNERSHIP OF READY-TO-ADMINISTER PRE-FILLED STERILIZED SYRINGES IN A DUTCH HOSPITAL; A COST MINIMIZATION ANALYSIS

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**OBJECTIVES:** Preparation errors occur frequently during conventional multiple step preparation of parenteral drugs at the bedside, causing potential adverse drug events (ADEs), which can be a burden to the patient and involves high costs for the national healthcare system. The use of ready-to-administer (RTA) pre-filled sterilized syringes (PFSS) produced by the hospital pharmacy can prevent a significant part of preparation errors and reduces the risk of bacteremia due to contamination of the intravenous fluid. This research aims to compare the total cost of the conventional preparation methods (CPM) with the PFSS method. **METHODS:** In the analysis, costs related to the preparation of the drugs, bacteremia due to contamination, ADEs as a result of medication errors and wastage of syringes were taken into account. Annual costs in a general Dutch hospital were consistently calculated. Three scenarios were investigated: (i) all preparations CPM (864.246 administrations per year); (ii) all preparations as PFSS; and (iii) 200.000 PFSS and the remaining part CPM (reflecting a transition state as currently present). Deterministic and probabilistic analyses are performed. **RESULTS:** The first scenario shows higher annual costs at €10.862.609 compared to the second scenario. The current situation (third scenario) already shows savings of €2.420.545 compared to the old situation (first scenario). Sensitivity analyses revealed that cost savings of PFSS were mainly the result of decreased risks of medication errors and contamination of intravenous fluids. Extrapolating these results nationwide indicates potential savings over €300 million if only PFSS were used. **CONCLUSIONS:** The use of PFSS prepared at the hospital pharmacy yielded cost-savings compared to conventional preparation at the bedside in the Dutch hospital.

#### PHP89

##### COMPARISON OF HOSPITAL RESOURCE UTILIZATION BETWEEN ELECTIVE AND EMERGENT ADMISSIONS AMONG PATIENTS UNDERGOING INPATIENT COLORECTAL SURGERY

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**OBJECTIVES:** To compare hospital resource utilization between elective and emergent admissions among patients undergoing inpatient colorectal surgery. **METHODS:** This retrospective, observational study used hospital billing data from >600 hospitals in the U.S. (Premier Healthcare Database). Patients included were admitted for inpatient colorectal surgery between 1/1/2008-12/31/2014 (first observed admission=index) and were aged ≥18 years as of index. Patients were classified as having either an elective or emergent (admitted through the emergency room) admission. Study outcomes included total hospital costs (HC), length of stay (LOS), and operating room time (ORT). Outcomes were compared between elective and emergent admissions using multivariable Generalized Estimating Equations (GEE) models, which adjusted for patient, procedure, and hospital factors, and accounted for potential within-hospital clustering. Adjusted predicted outcomes were generated for each group using the least squares means method. **RESULTS:** Of the 227,632 patients with colorectal surgery (average age=63.3 years; 53.2% female), 94,902 (41.7%) had emergent admissions. Compared to elective admissions, emergent admissions had a higher proportion of patients with open surgeries (78.2% vs 49.5%), and lower proportions of surgeries with colon/rectal specialty surgeons (9.6% vs 21.3%) or with diagnoses of colorectal cancer (28.7% vs 43.5%). In the GEE models, HC was 50.8% (95% CI: 48.1%-53.6%, p<0.0001) higher in emergent versus elective admissions (adjusted HC=\$28,966 emergent, \$19,209 elective); LOS was 61.1% (58.0%-64.2%, p<0.0001) higher in emergent versus elective admissions (adjusted LOS=11.2 days emergent, 6.9 days elective); and ORT was 6.3% (5.5%-7.2%, p<0.0001) shorter in emergent versus elective admissions (adjusted ORT=187.0 minutes elective, 199.6 minutes emergent). **CONCLUSIONS:** Among patients undergoing inpatient colorectal surgery, substantial differences were identified between elective and emergent admissions in terms of surgical approach, surgeon specialty, indication, and hospital resource utilization among patients with inpatient colorectal surgeries. Emergent admissions are complex in nature; further research is warranted to understand drivers of the observed outcome differences.

#### PHP90

##### ECONOMIC IMPACT OF NURSE SENSITIVE OUTCOMES IN IRISH HOSPITALS

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**OBJECTIVES:** Since the financial crisis of 2008 there has been increased pressure on public health care services like that in Ireland to "do more with less". This has direct consequences for front line personnel such as nurses, whose work load has increased in subsequent years. Also during this time technologies are advancing and the availability of treatment interventions in and outside of hospitals is increasing, placing increased demands on already scarce resources. As a result front line staff, such as nurses, had to increase their workloads care and provide efficiencies. Recently, nurse sensitive outcomes are used as a means of evaluating nurse staffing. Nurse sensitive outcomes are adverse events sensitive to nursing which are often reported as secondary diagnoses but have an economic impact on an episode of care. This study estimates of nurse sensitive outcomes on inpatient casemix costs in Ireland. **METHODS:** Data (N=2,014) was sourced from patient discharge information from six acute wards amongst three Irish hospitals from July 2016 to January 2017. (These hospitals were enrolled in national pilot of a Nurse Safe Staffing and Skill-Mix Project) The National Ready Reckoner DRGs (version 8) was used to value the relevant inpatient casemix cost per case (i.e. episode of care) for each patient from the health care provider's perspective. Ordinary least squares regression was performed (Stata version 14) to estimate the impact of nurse sensitive outcome on inpatient casemix cost per case. **RESULTS:** Controlling for length of stay the average cost associated with the presence of a nurse sensitivity outcome is estimated to be €1,093 (p=0.011). **CONCLUSIONS:** Nurse sensitive outcomes do impact on inpatient costs. The estimated average cost of nurse sensitive outcomes can be used to estimate the cost of nurse sensitive outcomes avoided in economic evaluations, budget impact analysis etc. of interventions in an acute care settings.