

community-dwelling patients with diabetes aged between 20 and 85 in the 2006 and 2007 Medical Expenditure Panel Survey (MEPS) consolidated data files, a nationally representative survey linked to prescribed medicines file. The main outcome measure was the total expenditures including inpatient and ambulatory care, excluding pharmacy costs, in 2006 and 2007, respectively. The differences in the health-care costs between statin users and nonusers were estimated from the interaction terms between time trend and statin use, using a generalized linear model with a log link and gamma distribution, controlling for the difference in the two groups and time trend. The other covariates included were socioeconomic variables, insurance status, and comorbid conditions. **RESULTS:** In 2006, the median total expenditures of the statin users and nonusers were \$1787 (IQR \$583–5993) and \$1117 (IQR \$215–5565), respectively. In the subsequent year, the median total expenditures of the statin users and nonusers were \$1452 (IQR \$443–6354) and \$851 (IQR \$180–4451), respectively. No statistically difference in the total expenditures between the two groups was found (parameter estimate 0.37, 95% CI –0.05, 0.79, *P*-value 0.086). **CONCLUSIONS:** No evidence supporting the reduction in health-care resource utilization following statin use was found. While our finding shows that statin use did not lower subsequent health-care resource utilization, further research is needed to investigate the potential effect of the differences among the users and nonusers, and the potential effect of the differential slopes of the two groups on resource utilization overtime.

PCV40

#### WHICH STRATEGY CAN CONTROL THE EXPENDITURE OF HIGH-PRICE DRUGS?

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**OBJECTIVES:** To compare patients' expenditure on utilization of high price new statin drugs. **METHODS:** This is a cross-sectional analysis. The hospital database of out-patients diagnosed as hyperlipidemia during 2003–2006 was retrieved for drug names and their costs. The expenditure for statin drugs per patient before and after a new statin was prescribed were compared. **RESULTS:** Before Fluvastatin 80 mg was included to the hospital formulary in 2003, the expenditure for statin drugs per patient was 8.27 USD. Average statins expenditure after 3 months of Fluvastatin 80 mg first prescribed was increased to be 22.59 USD or 273%, with the market share only 0.4% of all antihyperlipidemic drugs prescribed in the hospital. When other statins, Pravastatin 40 mg, Atorvastatin 40 mg, Simvastatin 80 mg, Rosuvastatin 10 mg, and Pravastatin 20 mg; were included to a hospital formulary, the expenditure for statin drugs per patient were changed to +7%, +151%, –24%, +169, and –26%, respectively; while the market share for each drug at the time of first prescribe was 1.9%, 0.4%, 0.2%, 2.8%, and 1.0% respectively. It was found that when a new statin with the same generic name but different strength was prescribed, the average statin expenditure was reduced; while new generic statins increased the expenditure. The average cost of statins per patient after including Pravastatin 20 mg to the formulary in 2006 was US\$45.02; which was 544% of the baseline statins cost in 2003. **CONCLUSIONS:** The hospital administrator should employ effective strategies to control utilization of high price drugs; also prevent excessive drug promotion.

PCV41

#### ANTI-THROMBOLYTIC AGENT USE AND PATTERNS OF HEALTH-CARE UTILIZATION IN PATIENTS WITH ACUTE MYOCARDIAL INFARCTION (AMI) USING KOREA NATIONAL HEALTH INSURANCE CLAIMS DATABASE

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**OBJECTIVES:** To estimate the health-care utilization patterns and costs related to ST-elevation acute myocardial infarction (STEMI) and understand the pattern of anti-thrombolytic use after stenting with a Korean population based design. **METHODS:** We extracted the insurance claims records of STEMI patients defined as diagnosed with AMI and admitted by emergency room from Korea National Health Insurance claims database. We examined the health-care service provided to stent naïve patients among STEMI patients defined as having no coronary-stents during one-year washout-period and having stents during two-year intake-period (January 1, 2006–December 31, 2007). Annual claims records were aggregated for each patient to produce patient-specific information on total utilization, costs and anti-thrombolytic use. We examined the pattern of anti-thrombolytic use according to types of the first stents (group I as using drug-eluting stents [DES], group II as using bare-metal stents [BMS]) and types of revascularization method (group A-DES, group B-BMS, group C-balloon, group D-CABG). **RESULTS:** There were 19,120 subjects identified as STEMI patients. Each STEMI patient had 8.7 outpatient visits, 1.1 admission per year. The total costs for treating STEMI in the nation was estimated as Korean-won (KRW)106,666million. The per-capita insurance-covered costs were KRW3,721,390. Those increased until the age of 74 years and reduced after the age of 75 years. The annual number of claims in tertiary hospital was slightly fewer than secondary hospitals (13,303 vs. 13,730), but insurance-covered costs/claim in tertiary hospital were higher than those in secondary hospitals by KRW1,493,051. The duration of using Cilostazol from the first stenting to revascularization in group I was 79.12 days, while GroupII was 73.44 days. The use of Cilostazol was longer in group IA (95.8 days) or IC (89.18 days) than group IIA (62.15 days) or group IIC (61.33 days). **CONCLUSIONS:** In Korea, the burden of illness for AMI is a significant issue. Cilostazol was used longer when DES were used at first stenting compared to BMS. Whether the longer usage of Cilostazol results in better outcome needs further research.

PCV42

#### CLINICAL OUTCOMES FROM PHARMACIST-MANAGED ANTICOAGULATION CLINICS (ACC) IN PRIMARY CARE SETTINGS IN SINGAPORE

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**OBJECTIVES:** Pharmacist-managed anticoagulation clinics (ACC) have been proven to provide positive outcomes in both overseas and local tertiary settings as part of a health-care team in caring for patients on warfarin therapy. However, currently, there is no published study on the effectiveness of pharmacist-managed ACC in the primary care settings in Singapore. Therefore, the primary objectives of this study were to determine the effectiveness of pharmacist-managed ACC in maintaining INR within the therapeutic range, and their associations with patient demographics. The secondary objective was to examine the incidence of warfarin-related adverse effects. **METHODS:** This was a retrospective, time-series study conducted in nine outpatient primary care clinics in Singapore from September to December 2009. All patients aged ≥21 years with at least three visits with the ACC pharmacists within the first 12 months of physician referral were included in this study. Patient demographics and clinical outcomes, such as INR and incidence of warfarin-related adverse events, were collected at first visit to ACC and at every 4-month interval for a total of 12 months. **RESULTS:** A total of 269 patients were under the care of ACC pharmacists from April 2008 to May 2009, and of which 82 (30%) met the inclusion criteria. INR was maintained at therapeutic range throughout the 12-month period with minimal fluctuations between each visit (*P* = 0.621). There was no association between INR and patient demographics except for intake of vitamins, supplements and herbal medications (*P* = 0.006) and change in medications (*P* = 0.039) at the 12th month. Documented warfarin-related adverse events included gingival bleeds (1; 1%), leg cramps (5; 6%), and swells (5; 6%). **CONCLUSIONS:** Pharmacist-managed ACC in the primary care settings in Singapore were effective in maintaining INR within the therapeutic range. The service also minimized the frequency of adverse events commonly associated with warfarin therapy.

PCV43

#### PHYSICIAN-LEVEL CLASS EFFECT ON 90-DAY BLOOD PRESSURE VALUES: A META-ANALYSIS OF MULTILEVEL OBSERVATIONAL STUDIES OF VALSARTAN ANTIHYPERTENSIVE EFFECTIVENESS

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**OBJECTIVES:** Blood pressure (BP) values in response to antihypertensive treatment are influenced by both physician- and patient-level factors. We quantified summary estimates of variability in BP values attributable to a physician-level class effect across six observational studies. **METHODS:** We evaluated 90-day BP data on 14,116 patients, in whom prior treatment failed or was not tolerated, who received valsartan-based therapy for the treatment of hypertension. Data were collected during six consecutive prospective, observational, multi-center, pharmaco-epidemiologic studies conducted in Belgium between 2005 and 2009. Each study was designed to collect data from patients and their treating physicians. We applied a two-level hierarchical linear modeling method, using mixed-effects regression with residual maximum likelihood estimation. From these data, intraclass correlation coefficients (ICCs) were calculated to quantify the variability in 90-day systolic BP (SBP) and diastolic BP (DBP) values attributable to within-physician variability in each study. We then completed a random-effects meta-analysis of ICC point estimates and variance from each study, to account for within- and between-study differences, and derived ICC summary estimates and 95% confidence intervals (CI). **RESULTS:** Summary estimates of absolute reduction in 90-day SBP and DBP across studies were –18.17 mmHg (95% CI = –16.84 to –19.51 mmHg) and –9.73 mmHg (95% CI = –9.22 to –10.24 mmHg) respectively. ICCs for SBP ranged from 0.210 to 0.277, with a random-effects summary estimate of 0.238 (95% CI = 0.220 to 0.256; *P* < 0.0001; *I*<sup>2</sup> = 0.002; *I* < 1%). ICCs for DBP ranged from 0.176 to 0.282, with a random-effects summary estimate of 0.255 (95% CI = 0.229 to 0.282; *P* < 0.0001; *I*<sup>2</sup> = 0.022; *I* = 45.69%). **CONCLUSIONS:** Considering within- and between-study differences in ICC, the average proportion of variance in 90-day SBP and DBP values attributable to a physician-level class effect was between 22.0% and 25.6%, and 22.9% and 28.2%, respectively. Further research is warranted to identify specific and amenable physician-level factors that contribute to higher BP values in response to antihypertensive treatment.

PCV44

#### ROLE OF COMMUNITY PHARMACISTS IN HEALTH-RELATED EDUCATION AND COUNSELLING: VIEWS FROM GENERAL PUBLIC IN THE STATE OF PENANG, MALAYSIA

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**OBJECTIVES:** To explore general public's awareness and perceptions toward the role of community pharmacists in the provision of health related education and counsel-