OBJECTIVES: To determine association between heart failure (HF) and in-hospital mortality in ST-elevation myocardial infarction (STEMI) patients treated with Percutaneous Coronary Intervention (PCI). **METHODS:** Retrospective analysis of I3 InVision Data Mart (2003-08). Adult enrollees (≥18 years) with primary diagnosis of STEMI were selected if they were a) treated using PCI procedure and b) had continuous enrollment for at least 6 months prior to the STEMI-related index hospitalization (baseline). Enrollees were excluded if they underwent coronary artery bypass graft during index hospitalization. In-hospital morality was assessed based on an algorithm using claims data (or lack thereof) for STEMI patients after index hospitalization. Pre-existing HF was defined as presence of a claim with relevant HF diagnosis at baseline. New onset HF was defined as listing of HF as a comorbidity in the reimbursement claims for index hospitalization without supporting evidence for pre-existing HF at baseline. Multivariate logistic regression was used to assess association between HF status and in-hospital mortality. Priori significance level of 0.05 was used for these analyses. **RESULTS:** Overall 7261 enrollees were included in the analysis. Out of these, 187 (2.6%) had HF at baseline and 1,075 (14.8%) experienced HF for the first time. Out of 7261 enrollees, 351 (4.8%) died during index hospitalization. Chances of in-hospital mortality increased significantly with either pre-existing HF (absolute rate (AR): 9.6%, Odds Ratio (OR): 2.3, 95% Wald confidence limits (CI): 1.0 - 5.4), new onset HF (AR: 10.7%, OR = 3.0, 95% CI: 2.3 - 3.8) or inclusion of pre-existing HF as a major comorbidity (AR: 16.7%, OR = 3.9, 95% CI: 2.2 - 6.9) in index hospitalization claims. **CONCLUSIONS:** Presence of HF, recorded as either a pre-existing condition or as a major comorbid condition, in STEMI patients undergoing PCI was associated with significant increase in the in-hospital mortality.

Cardiovascular Disorders – Cost Studies

PCV32

BUDGET IMPACT ANALYSIS OF INCREASING LMWH/FXI UTILIZATION

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OBJECTIVES: Low molecular weight heparins (LMWH) and factor Xa inhibitors (FXI) are used to treat and prevent venous thromboembolic events (VTE) and myocardial infarctions (MI). Although hospitalized patients have increased VTE/MI risk, almost 60% do not receive appropriate LMWH/FXI medication. Increasing LMWH/FXI utilization while containing costs has become an important quality improvement goal. Our objective was to estimate from the hospital perspective the annual inpatient costs of increasing LMWH/FXI utilization. **METHODS:** We developed a budget impact model incorporating event costs of deep vein thrombosis (DVT), pulmonary embolism (PE), and MI, and pharmacy costs for two LMWH products (dalteparin sodium injection and enoxaparin sodium injection) and one FXI (fondaparinux). Inpatient event costs were estimated from AHRQ data at $10,000, $20,000, and $9,000 for preventable DVT, PE, and MI events, respectively, and inpatient product costs were estimated using 2010 wholesale acquisition costs with market-based estimates of current product discounts. Changes in event, pharmacy, and total hospital costs were estimated for a hypothetical 500-bed hospital in which LMWH/FXI utilization increased from 60% to 80%, and market share followed two scenarios: maintaining current LMWH/FXI share (90% enoxaparin, 0% dalteparin) or complete formulary interchange from enoxaparin to dalteparin. **RESULTS:** Increasing LMWH/FXI utilization from 60% to 80% with unchanged market share would decrease costs of DVT by $153,000 (5.5% reduction); PE by $25,000 (6.3%); and MI by $12,000 (2.4%). Pharmacy costs would correspondingly *increase* by $308,000 (33.3%) for a net increase in total hospital costs (event plus pharmacy costs) of $117,000 (2.5%). Alternatively, increasing utilization while also shifting product market share to greater dalteparin and less enoxaparin use would reduce the pharmacy cost increase to $208,000 (22.5%), for a net cost increase of $17,000 (0.4%). **CONCLUSIONS:** Hospitals could potentially improve treatment quality by increasing appropriate LMWH/FXI utilization, and by shifting utilization from enoxaparin to dalteparin.

PCV33

USE OF SECONDARY DATA SOURCES TO ESTIMATE INPATIENT COSTS AND PAYMENTS FOR ACUTE CORONARY SYNDROME

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OBJECTIVES: Different cost components (charges, costs, payments) are required to estimate the economic impact of a drug therapy on inpatient care from a hospital and a health plan (payer) perspective. To estimate different cost and payments for acute coronary syndrome (ACS) inpatient care from different payer (hospital vs. health plan) and benefit design [Fee-for-Service (FFS) vs. Prospective Payment System (PPS)] perspectives. **METHODS:** ACS discharges were identified using diagnosis-related group (DRG) codes using two data sources: 1) 2008 MarketScan administrative claims for health plan payments, and 2) 2008 Healthcare Cost and Utilization Project Nationwide Inpatient Sample (NIS) for hospital charge data. Admissions were classified as myocardial infarction (MI), unstable angina (UA), percutaneous transluminal intervention (PCI), coronary artery bypass graft (CABG), and stroke. Cost-to-charge ratios were used to estimate cost to the hospital. MarketScan data were used to provide payments from payers based on different benefit designs (PPS, FFS, Medicare and commercial coverage). Cost and payment components were estimated at each DRG level and for individual ACS events. **RESULTS:** For ACS discharges (NIS n=109,903, MarketScan n=85,962), an admission with both PCI and CABG incurred highest hospital cost/plan payment ($43,867/$65,543) and UA incurred lowest ($4,369/$5,576). Hospital charges were consistently higher than plan payments (e.g., PCI: $52,256 vs. $22,828), whereas estimated hospital costs were consistently lower than payments (e.g., PCI: $15,902 hospital cost vs. $22,828 payments). Medicare payments were consistently lower than commercial payments (e.g., PCI: $17,205 vs. $22,828). Detailed charges, costs, and payments estimates for various ACS events will be presented. **CONCLUSIONS:** These ACS inpatient cost estimates from hospital and health plan perspectives and for different benefit designs will facilitate economic evaluations of ACS drug therapies. The analytic approach demonstrated the feasibility and validity of using different secondary data sources to estimate inpatients costs for various payer types and benefit designs.

PCV34

PROPHYLAXIS USE AND 90-DAY COSTS FOR VENOUS THROMBOEMBOLISM, MAJOR AND MINOR BLEEDING EVENT ANALYSIS IN HOSPITALIZED MEDICALLY ILL PATIENTS

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OBJECTIVES: To examine the prophylaxis use, incidence of VTE, major bleeding, minor bleeding and associated economic burden over 90 days in hospitalized medically-ill patients. **METHODS:** A retrospective study (January 01, 2005 to December 31, 2007) was conducted using a subset of the MarketScan Hospital Drug Database and its linked outpatient files from the Market Scan Commercial and Medicare Supplemental database. Eligible patients were selected if they were continuously enrolled in their health plan for at least 180 days prior to and 90 days following the index hospital discharge date, which is hospitalization with a medically ill diagnosis. Prophylaxis use is defined as the admission date of index hospitalization to 30 days after index hospital discharge and before the date of their first VTE events. Patients' demographics, healthcare visits and costs were compared using Chi-square testing and standardized differences. Risk-adjusted total healthcare costs between patients with events and without were estimated using the General Linear Model. **RESULTS:** In patients who were identified as medically ill (n=12,077), 6,464 (53.52%) received anticoagulant therapy during their hospitalization and until 30 days after discharge. Compared with patients who did not receive any anticoagulant prophylaxis, patients who received anticoagulant prophylaxis had significantly lower VTE events (1.47% vs. 3.58%, $p<0.0001$). Although there was no significant difference in rates of major bleeding and minor bleeding, after risk-adjustment for pre-specified covariates, patients with outcome events were significantly associated with higher total healthcare costs (VTE: $40,523 vs. $17,698 $p<0.0001$; Major bleeding: $27,430 vs. $18,137 $p<0.0001$; Minor bleeding: $25,696 vs. $17,410 $p<0.0001$). **CONCLUSIONS:** Despite existing guidelines, few medically-ill patients are receiving anticoagulant prophylaxis. Appropriate anticoagulant prophylaxis use results in lower VTE event rates and total follow-up healthcare costs in hospitalized medically-ill patients.

PCV35

COMPARISON OF MAJOR BLEEDING RELATED MORTALITY, HEALTH CARE UTILIZATION AND COSTS OF PATIENTS WITH NON-VALVULAR ATRIAL FIBRILLATION

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OBJECTIVES: To compare mortality, healthcare utilization and cost burden of patients who suffered major bleeding during the 180 days after diagnosis of non-valvular atrial fibrillation (NVAF) with patients who did not. **METHODS:** Based on the 2005-2007 U.S. Medicare advantage insurance claim files, patients aged 65 years and older who have had two or more primary diagnoses for NVAF occurring within 30 days of one another were selected. The 180-day follow-up mortality, healthcare facility use and costs for patients with and without major bleeding were compared. Risk adjustment was performed using the propensity score matching method with the ProbChoice™ algorithm. **RESULTS:** Out of the patients who were identified with NVAF (n=18,575), 266 (1.43%) suffered a major bleeding during the 180 days after NVAF diagnosis. Patients were not significantly different in terms of gender, region, and baseline comorbid conditions. After risk-adjustment for pre-specified covariates, mortality (9.77% vs. 0.38% $p<0.0001$), outpatient emergency room (ER) visits (84.21% vs. 43.23% $p<0.0001$), ischemic stroke (44 vs. 8/100 person years), myocardial infarction (10 vs. 2/100 person years) and osteoporotic fracture (7 vs. 1/100 person years) were all higher for patients who suffered a major bleeding compared to those who did not. Besides inpatient costs ($26,568 vs. $8,929), risk-adjusted outpatient ER costs ($1,280 vs. $744) were also higher for major bleeding patients. The overall risk-adjusted difference in healthcare costs is significant ($35,691 vs. $10,480 $p<0.0001$). **CONCLUSIONS:** Most of the adverse events analyzed were higher for patients who suffered a major bleeding after NVAF relative to patients who did not. Total healthcare utilization and costs were also significantly increased.

PCV36

EVALUATION OF THE HOSPITAL RESOURCE UTILIZATION ASSOCIATED WITH TOLVAPTAN USAGE AMONG HEART FAILURE PATIENTS WITH HYPONATREMIA FROM THE EVEREST TRIAL

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OBJECTIVES: Tolvaptan is an orally administered selective vasopressin V2-receptor antagonist for hyponatremia treatment. The Efficacy of Vasopressin Antago-