A FRENCH HOSPITAL BUDGET IMPACT MODEL COMPARING ANTICOAGULATION STRATEGIES IN PRIMARY PERCUTANEOUS CORONARY INTERVENTION

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OBJECTIVES: Primary percutaneous coronary intervention (PCI) has become the preferred treatment option for acute ST-segment elevation myocardial infarction (STEMI). In 2009, over 18,000 PCI procedures were performed in France. New antithrombotic therapies can potentially improve clinical outcomes and decrease costs. The aim of this study was to compare bivalirudin demonstrated reduced clinical event rates (mortality and bleeding) compared to a heparin and GPI (HEP + GPI) regimen. The potential economic value of implementing bivalirudin in the PCI setting is evaluated here from a French hospital perspective. METHODS: A budget impact model was developed to compare treatment of STEMI patients undergoing PCI with either bivalirudin or HEP + GPI. Clinical data for the model were derived from the HORIZONS trial database, and included 30-day event rates for major complications (non-access site bleeding as defined by trial protocol, Q wave myocardial infarction, repeat PCI and coronary artery bypass graft procedures) and patient death. Non-access site bleeding was examined in light of decreased incidence of access-related bleeding events associated with radial access PCI, a common practice in France. French cost and clinical practice data were derived from published sources. RESULTS: Overall average procedure and hospitalization cost per bivalirudin-treated patient (incorporating 7.2% provisional GPI use as per HORIZONS) was €817, compared with €9201 per HEP + GPI-treated patient. In extrapolating these benefits to a typical French hospital of 200 PCI patients per year, 2 deaths (1%), 3 minor non-access site bleeding events (1.4%), and 4 major non-access site bleeding events (1.9%) in patients would be averted with each bivalirudin-treated PCI. The total hospital budget impact of treating 200 PCI patients using a HEP + GPI based strategy is €1,840,267. Introducing a bivalirudin-based strategy could save €206,148 (11%) per year. CONCLUSIONS: Using a bivalirudin-based strategy in STEMI patients undergoing PCI is associated with favorable clinical and economic outcomes when compared with HEP + GPI in a French hospital setting.

ECONOMIC EVALUATION ON THE USE OF LEVOSIMENDAN IN PATIENTS WITH ACUTE HEART FAILURE (AHF) IN THE MEXICAN CONTEXT

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OBJECTIVES: Evaluate the economic impact of the use of Levosimendan compared to Dobutamine, in patients with Acute Heart Failure (AHF) in Mexico. METHODS: Literature review was conducted to compare the resource utilization for AHF patients. Further, a budget impact analysis was done to demonstrate economic advantages of using Levosimendan, compared to Dobutamine. An economic model was built based on days in general ward (GW) and intensive care unit (ICU) as parameters. The number of days in GW and/or ICU was multiplied by the cost per GW and ICU, taken from the Mexican Federal Authority data. RESULTS: Length of stay was shorter in case of Levosimendan treated patients compared to Dobutamine ones (2.88 vs. 3.22 in ICU, and 4.15 vs. 5.74 in GW), according to the ALARM-HF study (abstract presented at the ESC Heart Failure annual congress 2007, Germany). The medical costs per patient were US$418 if treated with Levosimendan and US$680 for a patient receiving Dobutamine, thus a US$262 difference. In Mexico, the cost of the treatment of AHF patients is US$500 (1 vial) for Levosimendan and US$76 (10 vials) for Dobutamine (US$424 difference). The final result, including the cost of the drug, shows a savings of $38 USD per patient in favour of the treatment with Levosimendan. According to international and national literature, the eligible AHF population to receive inotropic treatment in Mexico is approximately 90,240. Assuming that the whole population was treated with Dobutamine, the total cost, would be US$790.1 million. If treated with Levosimendan, the total would be US$714.8 million. This represents potential savings of US$75.6 million for the Mexican Public Health System. CONCLUSIONS: The use of Levosimendan, in comparison with Dobutamine, has demonstrated to represent a very important source of potential savings for the Mexican public health system in patients with AHF.

COMMUNITY-BASED CARE FOR THE SPECIALIZED MANAGEMENT OF HEART FAILURE: A COST-EFFECTIVENESS AND BUDGET IMPACT ANALYSIS

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OBJECTIVES: To determine the cost-effectiveness of Heart Failure (HF) clinics compared to standard care for HF patients in Ontario, Canada. METHODS: We performed a cost-effectiveness analysis, with a 12-year time horizon, from the perspective of the Ontario Ministry of Health. We compared a standard care cohort, consisting of all patients admitted to hospital with HF in 2005, to a hypothetical cohort treated in HF clinics. Survival curves describing the natural history of HF were constructed using mortality estimates from EFFECT study. Survival benefits and resource uptake associated with HF clinics were estimated from a meta-analysis. HF clinic costs were obtained by costing of a representative clinic in Ontario. Health-related costs associated with physician visits, hospitalizations, emergency department visits, same day surgeries and medication use, were determined through linkage to administrative databases included life expectancy, costs (in 2008 CADS) and the incremental cost-effectiveness ratio (ICER). A budget impact analysis was performed to estimate affordability. RESULTS: The systematic review determined that HF clinics were associated with a 29% reduction in all-cause mortality (risk ratio [RR] 0.71 [95% CI 0.55-0.91]) but a 12% increase in hospitalizations (RR 1.12, 95% CI 0.92-1.33). The cost of care in HF clinics was $52 per 30 patient-days. Projected life-expectancy of HF clinic patients was 3.91 years, compared to 3.21 years for standard care. The 12 year cumulative cost per patient in the HF clinic group was $66,532 versus $53,638 in the standard care group. The ICER was $18,259/life year gained. The average annual cost for HF clinic implementation was $17 million in Ontario. CONCLUSIONS: Multi-disciplinary HF clinics reduce mortality and increase life expectancy. Despite increasing overall costs due to increased late hospitalizations, HF clinics appear to be a cost effective way of delivering ambulatory care to HF patients.

COMPARATIVE EFFECTIVENESS OF LOW-MOLECULAR-WEIGHT-HEPARINS: META-ANALYSIS AND PHARMACOECONOMIC ASSAY

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OBJECTIVES: To compare efficacy, safety and consumption of low-molecular-weight heparins (LMWHs) in Lithuania and to develop pharmacoeconomic decision model based on meta-analysis data. METHODS: Review and meta-analysis of published randomized control trials which directly compared the safety and efficacy of low molecular weight heparins (LMWHs), i.e. Nadroparin, Enoxaparin, Dalteparin, was conducted by two independent reviewers using inclusion/exclusion criteria based on the objectives of research. Statistical software MedCalc was used to perform the estimations of the following values. We calculated the value of fixed effects and random effects odds ratio (95% confidence interval) (CI) for each trial for the composite end point. Afterwards, pharmacoeconomic decision modelling was implemented, which was based on meta-analysis data. Cost-minimization assay was accomplished using reference pricing methodology. RESULTS: Enoxaparin vs. Dalteparin: 4 studies, involving 471 patients, were eligible (fixed effects odds ratio 1.847 [95% CI 0.973–2.281]). Nadroparin vs. Enoxaparin: 3 studies, involving 1118 patients, were involved (fixed effects odds ratio 1.360 [95% CI 1.050–1.762]). Dalteparin vs. Nadroparin: 2 studies, involving 294 patients, were eligible (fixed effects odds ratio 0.577 [95% CI 0.337–0.988]). None of low-molecular-weight heparins demonstrated significant superiority when compared with each other, so group of LMWHs was suitable for pharmacoeconomic analysis and reference pricing implementation. Dalteparin single DDD price was set as reference price, as it was the least expensive option among the pricing reference for low-molecular-weight heparins would result in total savings of $1,830–2,070 thousand LTL in Lithuania yearly. The implementation of reference price would enable to decrease the total expenditures on LMWHs by 29.24%–31.98%. CONCLUSIONS: In the accomplished meta-analysis, none of low-molecular-weight heparins demonstrated significant superiority when compared with each other. Meta-analysis results could be applied to support pharmacoeconomic decision-making and that would allow decreasing healthcare expenditures in the whole country.

COST OF VTE EVENTS FOR MEDICARE PATIENTS UNDERGOING MAJOR ORTHOPAEDIC SURGERIES ACCORDING TO DISCHARGE STATUS

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OBJECTIVES: To estimate total costs of stay in a skilled nursing facility (SNF) to Medicare beneficiares, and private payors within 1 year after a venous thromboembolism (VTE) event in patients with total hip/knee replacement (THR/TKR), and to compare costs of stays in short- versus long-term facilities. METHODS: Based on 2004–2006 national Medicare claims, all fee-for-service Medicare patients older than age 65 years who underwent THR/TKR were identified. The 1-year follow-up cost of care for patients with a VTE event (including deep vein thrombosis (DVT) and/or pulmonary embolism (PE)) during initial hospitalization was calculated for stays in short- versus long-term facilities or SNFs. Individual costs were identified as Medicare cost, total cost to beneficiaries, and total cost to private payors. Costs were adjusted to 2008 costs. Risk adjustment was done using regression techniques, controlling for baseline characteristics between patients with and without VTE events. RESULTS: In patients who underwent THR/TKR (n = 155,197), 1.8% had postoperative VTE during initial hospitalization. Among Medicare beneficiaries, 3% of patients had DVT, 24% (n = 642) PE, and 6% (n = 153) both DVT and PE. Almost 20% of patients with DVT, 6.3% with PE, and 8.5% with both DVT and PE were discharged to an SNF. The 1-year total cost of an SNF stay for patients with VTE
was significantly higher: $8877 versus $7597; P = 0.001. In patients who had a VTE event, mean cost of care was almost 26% ($3906) and 17% ($1935) higher for stays in short—and long-term facilities, respectively; P = 0.001. On average, Medicare paid 26% ($4037), 17% ($2102), and 17% ($1149) more due to VTE events for patients discharged short or long-term facility or an SFN, respectively. CONCLUSIONS: Regardless of discharge status, VTE events during initial hospitalization for THR/TKR significantly increase total costs of a 1-year stay.

PCV51

AN ASSESSMENT OF DIRECT COSTS OF SINGLE PILL VERSUS FREE COMBINATION ARB/CCB THERAPY IN PATIENTS WITH HYPERTENSION

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OBJECTIVES: To evaluate direct costs associated with the use of valsartan/amlodipine single-pill combination (SPC) versus ARB/CCB free combination (FC) during the initial hospitalization for THR/TKR.

RESULTS: A total of 1,226 patients were identified in the SPC group and 281 patients in the FC group. After controlling for baseline differences, the SPC cohort ($79,578; p = 0.0096). Similarly, the SPC group had lower medical costs ($4,408 vs. $5,517; p = 0.0373) and lower annual pharmacy costs ($1,864 vs. $2,074; p = 0.0417) compared to FC patients. CONCLUSIONS: Annual total costs were $1,356 lower for patients taking valsartan/amlodipine single pill combination therapy as compared to patients taking ARB/CCB free combination therapy, suggesting that treatment of hypertensive patients with valsartan/amlodipine single pill combination therapy may result in cost savings compared to ARB/CCB free combination therapy.

COMPLIANCE AND HEALTH CARE UTILIZATION AMONG PATIENTS WITH HYPERTENSION TREATED WITH SINGLE PILL VS. FREE COMBINATION THERAPY IN THE US: NATIONAL DUAL AND STATE LEVEL RESULTS FROM A CLAIMS DATABASE ANALYSIS

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OBJECTIVES: To compare compliance/persistence, health care utilization, and costs associated with select antihypertensive single-pill combination (SPC) vs. free combination (FC) therapies among adult hypertension patients. METHODS: Administrative claims data from the HealthCore Integrated Research Database (HCIRD™) were used to identify patients with ≥1 hypertension claim (ICD-9 codes 401-404.xx) and ≥1 fill for valsartan/amlodipine SPC or ARB/CCB FC during the intake period 7/1/2007—9/30/2008. Only patients with a 26-months pre- and post-index health plan eligibility were selected. Total health care costs, medical costs and pharmacy costs were aggregated over the follow-up period and annualized. Generalized linear models were used to control for baseline differences between the SPC and FC therapy groups and to compare annualized total costs, medical costs and pharmacy costs between SPC and FC groups, respectively.

RESULTS: A total of 1,226 patients were identified in the SPC group and 281 patients in the FC group. After controlling for baseline differences, the SPC cohort ($79,578; p = 0.0096). Similarly, the SPC group had lower medical costs ($4,408 vs. $5,517; p = 0.0373) and lower annual pharmacy costs ($1,864 vs. $2,074; p = 0.0417) compared to FC patients. CONCLUSIONS: Annual total costs were $1,356 lower for patients taking valsartan/amlodipine single pill combination therapy as compared to patients taking ARB/CCB free combination therapy, suggesting that treatment of hypertensive patients with valsartan/amlodipine single pill combination therapy may result in cost savings compared to ARB/CCB free combination therapy.

PCV52

ALISKIREN COMBINED WITH ANGIOTENSIN II-RECEPTOR BLOCKERS (ARB) RESULTED IN BETTER OUTCOMES COMPARED TO ARB COMBINED WITH ANGIOTENSIN-CONVERTING ENZYME INHIBITORS (ACEI): RESULTS FROM A CLAIMS DATABASE ANALYSIS

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OBJECTIVES: To compare compliance/persistence, health care utilization, and costs associated with aliskiren + ARB vs. ARB + ACEI combination therapies among adult patients with hypertension. METHODS: Patients with hypertension (age≥18) initiated on combination therapy ≥215 days of overlap) with aliskiren + ARB or ARB + ACEI during July 2007-June 2008 were identified in the MarketScan Database. Study outcomes were measured during the 6-month study period, including medication possession ratio (MPR), treatment discontinuation rates, resource utilization, and changes in health care costs (from 6-month baseline to study period). Risk-adjusted differences in outcomes between aliskiren + ARB vs. ARB + ACEI patients and their 95% confidence intervals (CIs) were estimated using multivariate regression models, controlling for demographics, comorbidities, prescription drug use, and health care resource utilization during the baseline period. RESULTS: Comorbidity profiles were similar between patients on aliskiren + ARB (N = 1,395) vs. ARB + ACEI (N = 16,570), though baseline resource utilization and costs were different between the cohorts. Adjusting for baseline characteristics, aliskiren + ARB patients demonstrated significantly higher MPR (difference = 15.2% [95% CI: 13.0, 17.4%]) and lower discontinuation rate (odds ratio = 0.43 [95% CI: 0.37, 0.51]) than ARB + ACEI patients. CONCLUSIONS: Aliskiren + ARB patients had fewer all-cause hospitalizations (adjusted incidence rate ratio [IRR] = 0.73 [95% CI: 0.61, 0.86]) and fewer all-cause emergency room (ER) visits (adjusted IRR = 0.72 [95% CI: 0.61, 0.85]) than ARB + ACEI patients; results for cardiovascular-related hospitalizations and ER visits were consistent. Compared to ARB + ACEI patients, aliskiren + ARB patients had larger increases in prescription costs by $246 the 6 months following therapy initiation (95% CI: $153, $375), but showed a trend in reducing total health care costs by $835 (95% CI: $2,409, $1,342) during the same 6-month period. CONCLUSIONS: Patients with hypertension initiated on aliskiren + ARB had significantly better compliance/persistence and lower frequencies of hospitalizations and ER visits than those initiated on ARB + ACEI. Trends indicated greater reductions in total health care costs with aliskiren + ARB, despite increased prescription costs.

PCV53

THE INCIDENCE AND COST OF SURGICAL SITE INFECTION (SSI) FOR COMMON CARDIOTHORACIC SURGICAL PROCEDURES IN THE USA: A STUDY USING THE PREMIER PERSPECTIVE™ DATABASE (PPD)

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OBJECTIVES: To estimate the incidence and costs for SSIs in several common cardiothoracic surgical procedures are not well characterized. Our study was designed to estimate the cost of several higher volume inpatient cardiothoracic surgical procedures to better characterize the burden of SSIs to hospitals and the health care system. METHOD: The Premier Perspective™ Database (PPD) was used to estimate the incidence and costs for SSIs in several common cardiothoracic surgical procedures using ICD-9 codes discharged between Q2 2006 and Q1 2009 from the over 600 US hospitals included in the PPD. PPD is the largest hospital-based, service-level comparative database in the USA providing detailed resource utilization and cost data categorized under a patients’ principal and secondary diagnosis procedure codes. Our study focused on high volume cardiothoracic surgical procedures including sternum closure (3 codes), CABG (3 codes), and valve replacement (4 codes) to better estimate the incidence and costs of SSIs and the added costs to the health care system. RESULTS: The incidence of coded SSIs ranged between 1.9% to 6.3%, while the incremental additional costs for each SSI ranged between $30,395 and $67,722. The magnitude, therefore, of increased costs for each SSI was between $30,395 and $67,722. It was estimated, for increased costs for each SSI was between $30,395 and $67,722. Therefore, it was estimated that SSIs in several common cardiothoracic surgical procedures were relatively small (1.9%-6.3%), however, the increased costs ranged from 2- to 6-fold higher compared with not having an SSI, depending on the cardiothoracic surgical procedure. CONCLUSIONS: The incidence of SSIs in several common cardiothoracic surgical procedures were relatively small (1.9%-6.3%), however, the increased costs ranged from 2- to 6-fold higher per SSI representing a substantial economic burden to hospitals and the US health care system. New health care interventions targeted towards reducing the incidence of SSIs for common cardiothoracic procedures along the patient-care continuum are likely to reduce costs in both the short and long-term for hospitals in the US health care system.

PCV54

DIFFERENCE IN OUTCOMES MEASURES OF PATIENTS WITH VALVULAR AND NON-VALVULAR ATRIAL FRICTION

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OBJECTIVES: Real world outcomes differences between valvular and non-valvular atrial fibrillation is unknown. We identified these patients from U.S. claims data and compared the main outcomes differences to determine the economic and clinical burden of the disease. METHODS: We used U.S. medical and pharmacy claims data from 2003-2007 for the analysis. Patients aged 65 years and older who had 2 or more primary diagnoses for atrial fibrillation occurring within 30 days of one