

## Abstracts

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less costly than UFH. These findings were robust with respect to changes in the background risk of thromboembolism and risk of death from competing causes. **CONCLUSIONS:** Thromboprophylaxis with enoxaparin represents a cost-effective use of health-care resources and dominates strategies involving the use of UFH in acutely-ill medical inpatients.

**PCV15**

### TOTAL DIRECT MEDICAL AND DRUG COSTS OF NON-ADHERENCE TO STATIN THERAPY WITHIN THE FIRST YEAR OF TREATMENT

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**OBJECTIVE:** Controlled trials have demonstrated the positive impact of statins on health outcomes in hyperlipidemic patients. However, few studies analyzed the cost-effectiveness of adherence to statins.

**METHODS:** Data were retrospectively gathered from a commercial, integrated pharmacy/medical claims database. Patients over 18 years with at least two statin claims, a 120-day benefit history, and a 360-day continuous enrollment were selected for inclusion. Age, gender, and concomitant drug/disease information were collected. Adherence to statins was calculated as (total days supplied)/(last claim date—first claim date + last days supply)\*100. Total medical and drug costs, (TMDC), including drug, hospital, physician visit and lab information, were used to calculate per-member-per-month (PMPM) costs during the follow-up period. Number of patients and days to institutionalization for a disease-related event (DRE) was determined and the costs for DRE were calculated. ANOVA, or a non-parametric equivalent, was used to test results across adherence quintiles.

**RESULTS:** 2317 patients (62% male) were included in this analysis. The mean sample age was 53 with patients taking an average of 7.1 medications concomitantly. 72.8% of patients were less than 80% adherent and nearly 1/3 were less than 39% adherent. The median TMDC for the sample was \$379 PMPM, with costs significantly decreasing as adherence decreased ( $P < 0.0001$ ). The median cost for DRE was \$313 PMPM, and also decreased as adherence decreased, except for the >100% adherent patients whose costs were less than the median, though not significantly ( $P = 0.703$ ). Adherence was not significant in affecting the days to DRE ( $P = 0.4559$ ).

**CONCLUSION:** Although statins reduce cardiovascular events over multiple years, this study confirms that cost savings cannot be expected in the first year. If drug costs are included in the total costs, one cannot expect an increase in adherence to decrease the total direct health care costs in the first year of treatment.

**PCV16**

### DIFFERENCES IN HOSPITAL LENGTH-OF-STAY, CHARGES AND MORTALITY IN CONGESTIVE HEART FAILURE PATIENTS

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**OBJECTIVE:** To demonstrate differences in hospital length-of-stay (LOS), charges, and mortality in CHF patients by hospital and patient characteristics using the 1997 Hospital Cost and Utilization Project (HCUP) database.

**METHODS:** Hospitalizations with ICD-9-CM codes for CHF were extracted from a 10% random HCUP sample to yield 19,746 hospitalizations representing 22 states. Hospital variables included region (Northeast, Midwest, South, West), location (urban/rural), teaching/non-teaching status, ownership (government, for-profit, not for-profit), and hospital size (small, medium, large). Patient variables included age ( $\leq 50$  years, 51–65 years, >65 years), race (white, African-American, others), gender, income ( $< \$25,000$ , \$25,000–\$30,000, \$30,000–\$35,000,  $> \$35,000$ ), number of comorbidities, and payer status (Medicare, Medicaid, private/HMO, self-pay). One-way ANOVA and chi-square statistics were used to test for significant ( $p < 0.05$ ) differences.

**RESULTS:** On average, CHF patients incurred charges of \$11,866 per hospitalization. The mean LOS per hospitalization was 5.83 days and the in-hospital mortality was 4.6 percent. LOS and hospital charges increased with disease severity when patients were classified into 3 severity levels based on the number of comorbidities. Self-pay patients had the longest LOS (8.69 days) but the lowest charges (\$11,418), and privately-insured/HMO patients had the shortest LOS (5.33 days) but the highest charges (\$13,381). For-profit hospitals reported the highest mean charges, followed by private/not profit and government hospitals. Mortality did not vary by region, location, ownership and teaching status. Elderly patients (>65) had significantly higher charges as compared to younger patients ( $< 50$ ) (\$13,817 vs. \$11,607) and had higher mortality (5.4% vs. 1.6%). High-income patients incurred significantly higher charges as compared to low-income patients (\$13,456 vs. \$10,840). Whites had higher mortality (5.1%) as compared with others (4.6%) and African-Americans (2.8%). LOS and charges did not vary by race or gender.

**CONCLUSION:** Hospital LOS, charges and mortality in CHF patients show marked differences when compared by patient and hospital characteristics.

**PCV17**

### COST-EFFECTIVENESS OF RAMIPRIL (ALTACE) IN PATIENTS POST-REVASCUARIZATION

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**OBJECTIVES:** To assess, from a societal perspective, the cost-effectiveness of use of ramipril (Altace®) after invasive revascularization, based on the Angiotensin-converting Enzyme Inhibition Post Revascularization Study (APRES), which found that ramipril was associated with significantly reduced risk of cardiac mortality and of non-fatal events.

**METHODS:** Probabilities of acute myocardial infarction (AMI), congestive heart failure (CHF), angina pectoris and cardiac mortality associated with ramipril or placebo from APRES, a randomized, double-blind, placebo-controlled study of 159 patients who had undergone revascularization were applied to a decision-analytic model. Reduction in risk of non-fatal events was used to model expected costs and reduction in risk of cardiac mortality was used to define effectiveness. Unit costs were based on hospitalization charges from the 1997 Healthcare Cost and Utilization Project (HCUP-3), adjusted by the Medicare cost-to-charge ratio, as well as costs obtained from published literature. Drug costs were based on published average wholesale prices (AWP) from the 1997 Red Book. All costs were discounted at 3% per year.

**RESULTS:** Based on average daily AWP of \$0.94, ramipril was associated with a discounted incremental cost of \$934 per patient over 33 months of treatment and, after accounting for cost offsets due to reduced risk of clinical events, a net expected incremental cost per patient of \$327. Given a 7.6% absolute risk reduction in cardiac mortality (8.9% less 1.3%,  $p < 0.05$ ), ramipril was associated with an incremental expected cost of \$4,300 per death averted and, correspondingly, \$371 per life year saved, based on additional life expectancy in this patient population. Sensitivity analysis indicated that these estimates ranged from a total cost offset (minus \$61 per life year saved) in the best scenario to \$861 per life year saved in the worst scenario.

**CONCLUSIONS:** Ramipril is expected to be a cost-effective addition to medical management of patients undergoing revascularization.

#### PCV18

### OVERWEIGHT AND OBESITY: THE COST TO SOCIETY AND THE ASSOCIATION WITH BODY MASS INDEX

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Overweight and obesity are seen to be major risk factors for costly chronic diseases and can worsen other chronic conditions, leading to important health care resources absorption. There is evidence that health care resources use is associated with the severity of obesity expressed as body mass index (BMI).

**OBJECTIVES:** To examine direct and indirect costs per overweight and obese subject and to investigate the association between BMI and the costs of caring for overweight and obese subjects.

**METHODS:** The first 10 overweight and obese subjects attending 52 medical offices in Italy were enrolled. Medical and economic information was retrospectively collected using an electronic questionnaire. The societal perspective was adopted. Costs considered were direct (visits, diagnostics, drugs, other therapies, hospitalisations) and indirect (working activity reduction or abandon) and refer to a 6-month period. The association of costs with BMI was explored using parametric and non parametric tests as appropriate. All costs are in Euro year 2001 (1 Euro = 0.9 US\$).

**RESULTS:** The mean age of the 367 subjects enrolled was 43.18 ( $\pm 12.9$ ) and the mean BMI 35.34 ( $\pm 6.72$ ). 73.6% of the subjects were females, and 77.7% obese (BMI > 30). The mean 6-months health-care cost estimated was 855 Euro per subject. Hospitalisation was the health-care cost driver (64% of the total), followed by drugs (7%), visits and diagnostics (6% each). 16% percent of the sample reduced working activity by 35% on average. The cost of care for an overweight subject was significantly lower compared to an obese (685 vs. 917 Euro,  $P = 0.011$ ). BMI was associated with direct costs ( $P = 0.004$ ) and with work abandon or reduction ( $p = 0.001$ ).

**CONCLUSIONS:** The present study gives the opportunity to understand how health care expenditure vary across a wide range of BMI values in Italy and this could have important implications for targeting preventive and weight reduction interventions.

#### PCV19

### THE COST-EFFECTIVENESS ANALYSIS OF ASPIRIN FOR PRIMARY PREVENTION OF CARDIOVASCULAR DISEASE

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Studies show that aspirin is very effective as secondary prevention of cardiovascular events, however its use for primary prevention of cardiovascular disease (CVD) is questionable. There are clinical trials performed to study its effectiveness for primary prevention, however cost-effectiveness studies have not been done to see the trade-off between decreased CVD and increased adverse events. **OBJECTIVES:** Primarily, this paper seeks to calculate the incremental cost-effectiveness ratios (ICERs) of using aspirin in males and females aged 40–80 with no prior history of CVD. Secondarily, to calculate the ICERs of HMG-CoA Reductase Inhibitors compared to aspirin.

**METHODS:** The cost-effectiveness ratios were calculated for a hypothetical cohort of patients using a decision analytic spreadsheet model with a societal perspective in 2001 U.S. Dollars. Measurements of costs, effectiveness, utilities, and rates of events were obtained from literature. A series of one-way sensitivity analyses were performed to test the robustness of the model. For the secondary objective, the incremental costs and incremental CVD risk reduction obtained from using HMG-CoA Reductase Inhibitors instead of aspirin is applied to the model to