

costs were € 56,77 and € 39,18 correspondingly. "The cost-efficiency" analysis demonstrated that CER in main group was € 67,58 and CER in control group was € 72,56. **CONCLUSIONS:** The "cost-efficiency" analysis demonstrated that administration of tiazotic acid morpholinium salt in combination with standard therapy is more effective and less expensive in ACS patients. The obtained results allow to optimize treatment expenditures for a state, insurance companies and patients.

PCV71

RESOURCE UTILISATION AND COSTS IN PATIENTS WITH POST-STROKE SPASTICITY IN THE UNITED KINGDOM

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OBJECTIVES: About two-thirds of stroke survivors develop post-stroke sequelae, including spasticity. The burden of post-stroke spasticity (PSS) is high in terms of treatment costs and the effects of comorbidities. Our objective was to describe the burden of PSS in terms of healthcare resource utilization and costs, and quantify the difference between patients who develop PSS and those who do not. **METHODS:** This retrospective study used the THIN database. Adult patients with a stroke between 1Jan2007 and 31Dec2012 were included. PSS diagnoses were found to be under-represented; machine learning methodology was applied to identify potentially undiagnosed PSS. Cases were defined as patients with diagnosed or predicted PSS in the 12 months after stroke; for patients without PSS, each stroke acted as a control event. PSS cases were matched to controls on age, gender, prior strokes, socioeconomic status, and comorbidities, using the nearest neighbour algorithm. Direct healthcare resources, including primary care visits, all-cause hospitalisations, and specialist referrals during the year post-stroke, were costed out at 2014 GBP rates, using public sources. **RESULTS:** Of the 3,082 PSS cases and 28,753 controls, 56% were female and 49% were 75 years or older. During the first year, 33% of the PSS cases were hospitalised, compared to 9% of the controls. Specialist referrals were recorded for 76% of PSS patients and 64% of controls. Primary care utilisation was similar for both groups. Total average costs per patient were £1,270 (SD: 772) for cases and £631 (SD: 496) for controls. After adjusting for other covariates, a significant increase in cost for the PSS patients was found; on average £635 in the 12 months post-stroke. **CONCLUSIONS:** The costs for patients who develop PSS after stroke are twice as high as those for patients who do not develop spasticity, with the major driver being the number of hospitalisations.

PCV72

INCREASED COSTS DUE TO MYOCARDIAL INFARCTION (MI) IN FRANCE: AN OBSERVATIONAL ANALYSIS USING A CLAIMS DATABASE

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OBJECTIVES: Estimate the incremental annual cost after a myocardial infarction (MI) **METHODS:** A French representative cohort of patients who had a MI in France between 2007 and 2011 was extracted from a claim database of 600,000 patients. Costs were calculated from a community perspective, restricted to direct costs and from a health insurance scheme perspective. This analysis was performed on subjects still alive one year after MI **RESULTS:** A total of 1,920 subjects were identified with an index MI: 2/3 were males, mean age=67.2 y, 20.6% had diabetes, 37.6% hypercholesterolemia and 82.4% hypertension. Among the 1,920 subjects, 346 died in the first year and 3 were lost to follow-up: the cost was performed on 1,571 patients. The annual cost from a health insurance scheme perspective approximately tripled as it increased from €3,940 to €11,914 after a MI: Hospital cost increased from €1,616 before the index MI to €6,470 after hospitalization (the cost of the index hospitalization is excluded from the cost); Average community-based care costs increased from €2,323 before the index MI to €5,443 after: Travel costs increased from 127€ to 573€; Fees related to physician consultations increased from 589€ to 1,676€ (annual mean number consultations with a general practitioner and a specialist increased from 7.6 to 10.9 and from 5.4 to 10 respectively); Fees related to laboratory tests increased from 139€ to 408€; Cost of medicinal products increased from 1,105€ to 2,283€; Cost of medical non physician health professionals increased from 380€ to 534€. It should be noted that the mean cost related to the index MI hospitalization was €5,876. The evolution of the costs from a community perspective was similar. **CONCLUSIONS:** The economic impact of recurrent cardiovascular events is substantial since health-care consumption costs almost tripled after the index MI event

PCV73

HEALTHCARE COSTS ASSOCIATED WITH NON-VALVULAR ATRIAL FIBRILLATION IN ITALY

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OBJECTIVES: To determine the direct healthcare costs associated with non-valvular atrial fibrillation (NVAf). **METHODS:** A population-based cohort study was conducted using administrative data from a local health authority in the Campania Region (~1,000,000 inhabitants). NVAf was defined as one or more claims for atrial fibrillation (ICD-9-CM code 427.31) between January 1, 2005 and June 30, 2014, where none of the claims was associated with cardioversion or cardiac ablation and there was no evidence of valve-related diagnoses or procedures. All patients were followed from June 30, 2014 until death or end of study follow-up (December 31, 2014). The direct costs were reported as average annualized cost (per patient per month multiplied by 12). Costs were divided into hospitalizations, outpatient services and pharmacy claims. Generalised linear mixed models under gamma distribution were used to identify predictors of cumulative healthcare costs. Rate Ratios (RRs) and 95% confidence intervals (CIs) were adjusted for age, gender, incident patients, switcher,

CHA2DS2-VASc and HAS-BLED clinical risk score. **RESULTS:** Totally, 10,099 patients fulfilled our study criteria. The total annualized direct cost of NVAf patient was 1,627.9 euro ±1,076.6. The main cost component was the hospitalization (68.0%), followed by drug use (24.6%) and outpatient services (7.4%). The predictors of the total cost were male (RR: 1.37, CI: 1.29-1.45 versus female), incident (RR: 4.60, CI: 4.30-4.92 versus prevalent patient), switcher (RR: 1.88, CI: 1.72-2.06 versus non switcher), CHA2DS2-VASc score (RR: 6.34, CI:5.08-7.92 for score 7 versus score 0) and HAS-BLED (RR: 1.36, CI:1.25-1.48 for score >3 versus score ≤3). **CONCLUSIONS:** NVAf places an enormous burden on health care system. Hospitalization as major cost driver highlights the potential cost-effectiveness of disease management targeted at reducing risks of serious cerebrovascular events among NVAf patients.

PCV74

COST OF ILLNESS IN AORTIC STENOSIS PATIENTS

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OBJECTIVES: The innovative technologies for aortic stenosis (AS) treatment require in-depth analysis of the costs associated with disease and comorbidities. To quantify health care resources consumed by AS patients' treatment (drugs, diagnostic tests, hospital outpatient and inpatient) and estimate the total direct costs. **METHODS:** We conducted a retrospective observational cohort analysis using data from administrative databases of Local Health Authority of Milan in Italy. The study population included all subjects hospitalized with principal or secondary AS diagnosis between January 1, 2007 and December 31, 2011 (enrollment period). All subjects were observed for two years after the first hospitalization (index hospitalization). Patient characterization was related to the two years before index hospitalization (characterization period). Data related to hospitalizations, drugs and hospital outpatient during both periods were collected for each patient to quantify the resources consumption. The hospitalization costs were estimated using DRG tariffs and hospital outpatient costs with regional tariffs. The drugs consumption was evaluated through the tear-off tab prices. **RESULTS:** 919 patients were included (mean age 71.3 ± 11.6; 51% males). The mean cost of illness per patient is € 16,271 and € 13,916, in the characterization and observation period respectively. Of all treated patients, 323 (35 %) underwent surgical procedure. The mean cost of illness for these patients is € 28,365 and € 8,002, in the characterization and observation period respectively. Considering only costs related to cardiovascular disease, the mean cost per patient is € 3,470 and € 2,272 in the characterization and observation period respectively. **CONCLUSIONS:** The cost of illness in AS patients is lower in the period after admission, especially when patients underwent cardiac valve treatment.

PCV75

TRENDS IN EMERGENCY ROOM VISITS DUE TO HYPERKALEMIA IN THE UNITED STATES

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OBJECTIVES: Hyperkalemia is a metabolic abnormality seen frequently in the Emergency Department. The most common condition leading to hyperkalemia is missed dialysis in a patient with end stage renal disease (ESRD), but many other conditions can predispose an individual to hyperkalemia, such as acute renal failure, extensive burns, trauma, or severe rhabdomyolysis or severe acidosis. The objective of this study was to assess the resource burden on United States emergency room departments due to hyperkalemia. **METHODS:** The number of emergency room (ED/ ER) visits due to hyperkalemia, with International Classification of Diseases (ICD-9) code 276.7, were estimated using the Centers for Medicare & Medicaid Services (CMS) Agency for Healthcare Research and Quality (AHRQ) 2011 data for ED visits. A review of recent publications on hyperkalemia management was also conducted using the databases Pubmed, Embase, Biosis, Google Scholar and Cochrane. **RESULTS:** The annual number of ED visits with Hyperkalemia as one of the diagnoses is estimated to be 814,181 (SE 23,526). The annual number of ED visits with Hyperkalemia as the first listed diagnosis is estimated to be 66,989 (SE 2284). Among the age groups 18-44, 45-64, 65-84, 85+ the majority of ED visits were in the 45-64 (36.04%) and 65-84 (39.44%) groups (hyperkalemia as the first listed diagnosis). Among the five payer types, Medicare, Medicaid, Private insurance, Uninsured and Other, the majority of patients belonged to Medicare (68.41%). The trend was similar for patients with Hyperkalemia as one of the diagnosis or first diagnosis. **CONCLUSIONS:** This analysis confirms previous findings that hyperkalemia is common in the emergency department. There is a need for quick, safe and effective treatments for hyperkalemia, which can be easily administered in emergency department setting.

PCV76

ECONOMIC BURDEN IN DIRECT COSTS OF OBESITY AND OVERWEIGHT IN RUSSIA

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OBJECTIVES: The high prevalence of obesity and overweight leads to frequent use of health care resources. Studies aimed at assessment of damages caused by this medico-social problem are seen as very important at last years. The main aim of this study was to assess burden of obesity and overweight in Russia taking as an example three main social diseases: stroke, heart attack, and diabetes mellitus. **METHODS:** Available evidence on assessment of costs of management and treatment of obese and overweight patients and its relation to the disorders selected were analyzed. To measure costs of obesity and overweight for the state budget were used "cost of illness" analysis with consideration of risks of stroke, heart attack, and diabetes mellitus in the population (G. Oster et al, 2000). Taking into account specific features of cost assessment and based on publically available data were developed

separate models to calculate cost of illness for each selected diseases. Medical resources included hospital stays, outpatient visits, ambulance service and rehabilitation. **RESULTS:** Obesity-related and overweight-related expenses incurred by the state for treatment and management of patients were amounted to 10.2 billion rubles (\$ 190.5 million) for stroke, 7.6 billion rubles (\$ 141.9 million) for heart attack and 346.3 billion rubles (\$ 6.5 billion) for diabetes mellitus. **CONCLUSIONS:** Obesity and overweight associated with significant economic burden on Russia's health care system. There is a striking direct relationship between the cost of care on stroke, heart attack, diabetes mellitus and obesity and overweight that leading to increasing significant economic and social losses.

PCV77

MEDICAL COSTS AND RESOURCES CONSUMPTION IN PATIENTS WITH ATRIAL FIBRILLATION: AN ITALIAN OBSERVATIONAL STUDY

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OBJECTIVES: The prevalence of atrial fibrillation (AF), a common form of cardiac arrhythmia, is rapidly rising in the developed world. Though several studies addressed the cost of illness, recent improvements in the disease management may have affected per capita medical resources consumption and costs, therefore it is desirable to provide updated estimates. This naturalistic study aimed at estimating costs and resource consumption related to AF from the perspective of the Italian Healthcare System in a large cohort of hospitalized cases. **METHODS:** Using healthcare administrative databases (HADB) of Lombardy, a region in Northern Italy (10 million dwellers), we identified the cohort of residents who underwent a first hospitalization with a diagnosis of AF between 2003 and 2009, after a wash-out period of 3 years. We followed them until 2010, death or emigration, extracting from HADB information on hospitalizations, drug prescriptions and outpatient visits with related direct costs. We estimated mean annual resources consumption per 100 subjects and mean annual per capita cost through the Bang and Tsiatis approach. **RESULTS:** We recruited a cohort of 143,022 subjects (49% males), with a mean age of 75 years (± 12 standard deviation) and a mean survival time of 5 years (95% confidence interval (CI): 5.0; 5.1) from baseline. Mean annual per-capita expenditure was 4,008€ (95%CI: 3,981; 4,039), of which 65.2% was absorbed by hospitalizations, 18.5% by drug prescriptions and 16.3% by outpatient visits. We estimated 84.7 hospital admissions, the main driver of costs, per 100 subjects per year (95%CI: 83.8; 85.6), of which 17.0 (95%CI: 16.8; 17.2) with an AF diagnosis. **CONCLUSIONS:** In line with literature, our results highlighted a high burden of AF, with large per capita healthcare expenditures and a high number of hospitalizations. Since AF has been described as an epidemic, increased attention should be devoted to the management of such disease.

PCV78

COSTS OF CARDIOVASCULAR (CV) EVENTS IN THE UNITED KINGDOM (UK) USING REAL-WORLD DATA

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OBJECTIVES: To estimate direct medical costs of cardiovascular (CV) events in the UK: myocardial infarction (MI), ischemic stroke (IS), heart failure (HF), transient ischemic attack (TIA), unstable angina (UA), and revascularisation. **METHODS:** We used 2006-2012 Clinical Practice Research Datalink and Hospital Episode Statistics data to identify individuals with their first and, if present, repeated CV-related hospitalisations. Patients >18 years receiving lipid-modifying therapy within 180 days before the CV event were followed for 36 months, death, or loss to follow up. Patients were classified as CV Low/Moderate Risk, CV High Risk and CV Event History. Baseline (12 months before first CV event), acute (first 6 months afterward) and long-term costs (subsequent 30 months, annualised) were estimated by applying 2014 UK costs to drugs, hospitalisations and visits. Incremental CV event-related costs were calculated as the difference from baseline, reporting means across all cohorts and ranking cohort-specific means. **RESULTS:** There were 6,408 patients in CV Low/Moderate Risk, 17,685 in the CV High Risk, and 5,274 in CV Event History cohorts. Across the three cohorts, mean incremental acute CV event costs for revascularisation were £5,669 (£5,468-£5,823), MI £4,277 (£3,707-4,573), IS £3638 (£3,472-4,572), HF £2,635 (£ 2390-£3461), UA £2,229 (£2063-£2489) and TIA £1,572 (£1441-£1814). Mean incremental long-term costs were as follows: HF £1,129 (£-£37-£2829), MI £959 (£515-£1385), IS £953 (£682-£1072), TIA £793 (£340-£1692), UA £373 (£319-£677), and revascularisation -£221 (-£411-£599). Costs of CV Low/Moderate Risk cohort ranked the lowest; costs of CV Event History were the highest. Hospitalisation costs were the primary drivers for both periods. **CONCLUSIONS:** Revascularisation and MI are the costliest CV events. The costs are the highest in the acute phase during the first 6 months after a CV event and generally remain higher compared with pre-event period. Using real-world evidence, the economic burden of CV patients in the UK is substantial.

PCV79

ESTIMATING THE ECONOMIC BURDEN OF STROKE IN SOUTH INDIA: A COST-OF-ILLNESS STUDY

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OBJECTIVES: The recently-observed trend towards the stroke patients in raises the economic concerns. Cost-of-illness (COI) analysis is the main method of providing an overall view on the economic impact of a disease. The main objective of this study is to estimate the economic burden of stroke. **METHODS:** The

economic burden of stroke was estimated from a societal perspective with an incidence approach. Data were collected from clinical registries and 100 patients were included. In the cost calculations, both direct and indirect costs were estimated. **RESULTS:** Men (78%) consumed more acute care in hospitals, than the women (22%). Younger patients (59%) brought a significantly higher burden on society compared with the older patients due to the loss of productivity and the increased use of resources in health care. 41% of patients who have hypertension and 45% of patients with alcohol and smoking habits have more prone to stroke rather than the patients with other habits and comorbidities. 56% of patients have the hospital stay of 5-10 days and 52% are using 4-7 medicines per day. From the study results, average direct medical costs and direct nonmedical costs and Indirect costs were found to be 2819, 705 and 754 rupees. In essence, majority of the costs for stroke care fall on the hospital, than the long-term care and informal care costs and productivity loss. **CONCLUSIONS:** The result of this study can be used for further development of the methods for economic analyses as well as for analysis of improvements and investments in health care. This aspect highlights the enormous importance, for our healthcare service, to invest more in prevention. This cost analysis highlights the importance of clinical pharmacist to set up significant prevention programs on selected, high-risk population to reduce the economic burden of stroke, which is mostly attributable to hospital and inpatient rehabilitation costs immediately after the acute episode.

PCV80

SYSTEMATIC LITERATURE REVIEW OF DIRECT HEALTH CARE COSTS FOR CARDIOVASCULAR EVENTS AMONG EUROPEAN PATIENTS WITH DYSLIPIDEMIA OR HIGH CARDIOVASCULAR RISK

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OBJECTIVES: To review the direct patient-level costs of selected cardiovascular events (CVEs): unstable angina, myocardial infarction (MI), cardiac revascularization, heart failure, ischemic stroke, acute coronary syndrome in Europe. **METHODS:** A systematic literature review was conducted for the period between January 2000 and March 2015. MEDLINE, EMBASE, ECONLIT, and NHS Economic Evaluation Database, conference abstracts from the American Heart Association, American College of Cardiology, European Society of Cardiology, European Atherosclerosis Society, International Society of the Pharmacoeconomics and Outcomes Research and relevant reference lists were searched to identify published articles reporting direct costs of one or more CVEs (angina, myocardial infarction, cardiac revascularization, heart failure, ischemic stroke, acute coronary syndrome) in Europe (United Kingdom, Germany, Spain, France, Italy, Denmark, Finland, Iceland, Norway, Sweden, Belgium, Switzerland, The Netherlands). Two reviewers independently assessed studies against inclusion criteria and abstracted cost estimates; discrepancies were resolved through discussion or by third reviewer. Studies were included if they reported patient-level direct medical costs of one or more CVE(s) from a primary economic analysis or cost-effectiveness model among adults with identified dyslipidemia or elevated Low Density Lipoprotein-Cholesterol. Costs as reported in each study were inflated to 2015 values. **RESULTS:** Forty-eight studies were included for abstraction. Cost estimates for at least one event were found in twelve of the thirteen specified countries listed in the search strategy. Annual costs of care were highest for stroke (€958-€10,334), revascularization procedures (€211-€12,383) and MI (€558-€17,262). The highest cost acute events were revascularization procedures, specifically CABG (€10,814-€25,587), and ischemic stroke (€3,686-€7,978); angina (€935-€5,214) and heart failure (€1,106-€4,905) acute costs were relatively lower than other conditions. **CONCLUSIONS:** The findings of this study highlight the wide variation in the sources and populations used to populate economic models in the literature and the substantial costs of CVEs despite event type or country of origin.

PCV81

ESTIMATING THE BURDEN OF DIABETES TO THE FRENCH NATIONAL HEALTH INSURANCE

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OBJECTIVES: The aim is to assess for 2012 the direct and non-directly cost of diabetes from a public payer perspective using a new (bottom-up) method and the French health insurance medico-administrative database (SNIIRAM). **METHODS:** Using information about 60 millions of individuals from the general scheme insurance database (86% of the 69 million individuals insured by all French insurance schemes), we identified people who received care for diabetes if they had an ICD-10 diagnosis for diabetes as a long-term chronic disease or at least 3 annual reimbursements for anti-diabetic drugs. Costs of all reimbursed expenditures (outpatient/inpatient care, disability/sickness benefits) were extracted per individual. To estimate the burden of diabetes, we identified expenditure items which were directly attributable to diabetes (anti-diabetic drugs, medical devices, hospitalization with an ICD diabetes code). For other expenditures, we used an incremental approach and also econometric model by estimating the additional cost due to diabetes (by age and gender) between the diabetic and the non-diabetic population. **RESULTS:** Among 69 million individuals insured by all insurance schemes, 3.3 million (5%) had diabetes. The overall diabetic population expenditure accounted for 22 billion, 15% (of the total expenditures reimbursed by the national health insurance). Overall, 11.4 billion (52%) euros were considered as related to diabetes care. Reimbursements directly attributable to diabetes accounted for 2.6 billion (23% of the 11.4 billion euros) and other costs, mostly related to complications, for 8.8 billion (77%). Inpatient care represented the main part of the overall cost of diabetes care (22%) together with drugs (20%) and medical auxiliaries (15%). **CONCLUSIONS:** Care for diabetes complications and additional treatments for diabetic people account for the highest part of the costs of diabetes care. The prevention of acute illness