demographic characteristics, total health care utilization and cost burden were higher for patients who suffered a TIA after an NVAF diagnosis, relative to patients who did not.

PCV48

CLINICAL OUTCOMES AND COSTS ASSOCIATED WITH STROKE IN PATIENTS WITH NON-VALVULAR ATRIAL FIBRILLATION

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OBJECTIVES: To compare clinical outcomes and cost burden of patients who suffered a stroke during the 180 days after diagnosis of non-valvular atrial fibrillation (NVAF) with patients who did not. **METHODS:** Based on 2005-2007 US Medical insurance claim files, patients aged 65 years and older who have had two or more primary diagnoses of NVAF, occurring within 30 days of one another, were selected. The 180-day follow-up mortality rate, health care facility use and costs for patients with and without incidences of stroke were compared. Risk adjustment was performed using the propensity score matching (PSM) method with the ProbChoice™ algorithm. **RESULTS:** Out of patients who were identified with and without NVAF pre-stroke (n=18,195), 541 (2.97%) suffered a stroke during the 180 days after the NVAF diagnosis. After PSM risk-adjustment for pre-specified covariates, mortality (7.39% vs. 1.07% p<0.0001), outpatient emergency room (ER) visits (80.59% vs. 48.11% p<0.0001), readmission rates (1.85% vs. 0.40%, p<0.0001), transient ischemic attacks (44 vs. 8 /100 person years), and intracranial hemorrhage rates (71 vs. 7/100 person years) were all higher for patients who suffered a stroke compared to those who did not. Although risk-adjusted outpatient ER costs and office visit costs did not differ significantly between the two groups, patients who suffered a stroke had significantly higher inpatient ($24,231 vs. $15,137, p<0.0001) and total ($33,439 vs. $13,782, p<0.0001) expenditures. **CONCLUSIONS:** Most of the adverse events analyzed were higher for patients who suffered a stroke after an NVAF diagnosis relative to patients who did not. Total health care utilizations and health care costs were also significantly increased.

PCV49

EVALUATING THE MANAGEMENT OF THE REHABILITATION UNIT IN A TERTIARY REFERRAL HOSPITAL IN SPAIN: A COST-ANALYSIS STUDY

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OBJECTIVES: To ascertain the direct costs related to hospitalization in the Physical Medicine Service and Rehabilitation of a tertiary referral hospital during the year 2009. **METHODS:** An epidemiological, observational retrospective study was carried out in the Central University Hospital of Asturias –HUCA-, Spain. All patients admitted to the Rehabilitation Unit (RU) and suffering from a cerebrovascular disease (CVD), brain injury (BI), spinal cord injury (SCI) or amputations were included. RU services was acting as secondary referral level -SRL- in case of BI and CVD. In contrast, SCI and amputations were attended in the same RU as tertiary referral level-TRL-. A cost-analysis following hospital perspective was performed recording all health resources at patient level. Next, direct costs were calculated attaching a published cost to each resource. Socio-demographic and clinical variables were registered to describe the sample and to facilitate external comparisons. Mean costs per patient were calculated considering each of the pathologies and comparing SRL and TRL. Costs were defined in 2009 Euros. Chi2 test was used to compare socio-demographic and clinical variables between groups. Next, parametric (Student's t test and ANCOVA analysis) and non parametric analysis (bootstrapping) were applied to estimate economic differences between groups. **RESULTS:** A total of 243 patients admitted to RU were assessed. Mean age (SD) was 59.62 years (1.41) and 71.2% males. Mean cost per patient (SD): BI(n= 15) 28,837.87(23,998.80); CVD(n= 116), 31,751.05(19,151.26); SCI(n= 105), 27,635.39(24,856.55); amputations(n= 7), 24,342.86(5,426.48). Mean SRL cost was significantly higher than TRL: 31,417.48(19,681.03) and 27,429.61(24,106.37), respectively (p= 0.013). Total anual SRL cost was 4,115,751.43 and 3,072,167.39 TRL. **CONCLUSIONS:** Forty-six percent of total activity in the RU is related to TRL requiring 43% of total expenditure. Further research comparing this policy with early discharge and home rehabilitation should be implemented to promote the efficiency of this service.

PCV50

HOSPITAL COSTS ASSOCIATED WITH ATRIAL FIBRILLATION IN CANADA

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OBJECTIVES: Atrial fibrillation (AF) is a prevalent disease that often requires costly hospital care, but the cost of hospital utilization has not been reported in Canada. The purpose of this study was to estimate the cost of hospital utilization for AF in Canada. **METHODS:** Three national administrative databases (Discharge Abstract Database, Same Day Surgery and National Ambulatory Care Reporting System) for the year 2007/08 were used to capture admissions, same day surgeries and emergency department (ED) visits. Provincial/territorial data were extrapolated to the national level using age-gender census information where necessary. Records with a most responsible diagnosis (MRD) of AF, atrial flutter or a secondary diagnosis of AF were included in the analysis. Hospital costs were estimated by applying an average cost per weighted case to the resource intensity weight that was provided for each admission/visit, and then adding the physician fees for admissions, surgeries and interventions. All cost estimates are expressed in 2010 Canadian dollars. **RESULTS:** In 2007/08, the number of hospital admissions with MRD of AF was 10,924 for men and 11,899 for women, same day surgeries was 3,910 for men and 1,797 for women and ED visits were 29,754 for men and 28,312 for women. The average cost per admission was $6,718 with an average length of stay of 5.7 days. The average cost of same day surgery was $3,524 and an ED visit was $849. The total hospital cost for patients with AF was $815M; $710M for hospital admissions, $72.9M for ED visits, and $31.8M for same day surgery. Most of the costs were for hospital admissions when AF was listed as a comorbidity ($558.2M, 69%) **CONCLUSIONS:** The substantial cost burden of AF in the acute care sector is driven by the consequences of AF, while the costs for specific treatments for AF are relatively low.

PCV51

COST OF ACUTE CORONARY SYNDROME IN SWITZERLAND

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OBJECTIVES: Acute coronary syndrome (ACS) is the most important clinical consequence of coronary artery disease and a leading cause of death worldwide. This study aims to assess the costs of ACS from a social and health insurance perspective evaluating direct costs, production losses and intangible costs in terms of quality adjusted life years (QALYs) lost. **METHODS:** A bottom-up incidence approach was used. ACS-Patients with one or more ACS events were extracted from a national hospital database and from mortality statistics. Remaining life years of surviving patients were modelled on age, gender and life expectancy statistics. Inpatient costs include acute care and rehabilitation in 2008. Outpatient costs include costs for ambulance, visits to GP and cardiologist, outpatient diagnostics, medication and rehabilitation. Production losses were calculated according to the human capital approach, including absenteeism, permanent disability and premature death. Intangible costs were calculated based on literature data. Cost data are derived from official price lists, literature and experts. Validation of clinical data was conducted using the AMIS-PLUS registry. **RESULTS:** A total of 14,955 patients experienced a total of 16,815 ACS events in 2008; 2,752 died as a consequence of these. This resulted in 19,064 hospital stays with an average length of stay in acute care of 8.9 days per patient. Total direct costs amounted to 690 Mio Swiss Francs (CHF) for the society and 523 Mio CHF for health insurers. Forty-four percent belong to inpatient and 56% to outpatient services. Production losses were 515 Mio. CHF and intangible costs resulted in 37,457 QALYs lost. Average total direct costs and production losses per patient were 80,873 CHF. Results appear robust in sensitivity analysis. **CONCLUSIONS:** ACS causes considerable costs in terms of direct medical expenditures, lost production and premature death, even without taking into account costs for its chronic consequences such as congestive heart failure.

PCV52

TEMPORAL TRENDS IN THE HOSPITAL BURDEN OF ATRIAL FIBRILLATION AND STROKE ON SECONDARY CARE COSTS IN ENGLAND BETWEEN 2006 AND 2009

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OBJECTIVES: Atrial fibrillation (AF) is the commonest cardiac arrhythmia found in clinical practice with an increasing prevalence in the aging population. Local estimates vary from 1.2 to 2.5%. The objective of our study was to evaluate the burden of AF on secondary care costs in England, which is responsible for substantial cardiovascular morbidity and mortality. **METHODS:** AF and stroke event and cost data captured in Hospital Episode Statistics(HES), between 2006 and 2009, was analysed to estimate the trends in hospital episodes in England. **RESULTS:** A total of 193,742 patients with a primary or secondary diagnosis of AF were hospitalised in 2009, representing a 19% increase in AF patients on the previous 3 years. During this period there were 239,746 hospital spells with a diagnosis of AF; a 22% increase from 2006-2009. The total inpatient cost attributable to AF increased from £353 million in 2006 to a total of £361 million in 2009. As a proportion of all admissions, AF admissions were 1.1% in 2006 to 1.2% in 2009 and represented 1,162,213 bed days occupied in 2006 versus 1,108,283 in 2009. In 2009, of the 193,742 patients with a diagnosis of AF, 5,391 subsequently had a stroke. This gives a conversion rate from AF to stroke of 3.1% of patients – up from 2.5% in 2006. During this same period, the average length of stay for the stroke patient with AF has increased from 38 days to 43 days (higher than those patients who have only had a stroke). **CONCLUSIONS:** Despite advances in both AF and stroke management, AF presents a significant and increasing burden on hospital care in England. New initiatives are needed to detect AF early and prevent hospital admissions or to manage AF in rapid access arrhythmia clinics where appropriate therapies to manage the rate, rhythm and cardiovascular risks can be dispensed without needing admission.

PCV53

COST STUDY OF CAREGIVING FOR PATIENTS WITH CHRONIC SYMPTOMATIC HEART FAILURE IN SPAIN, INSIGHTS FROM THE INOESCARO STUDY

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OBJECTIVES: The objective of this study was to quantify, for the first time in a Spanish population, the time and cost burden of informal care for pts with heart failure. **METHODS:** A descriptive analysis of a multicenter, prospective observa-

tional study was performed. Pts who met inclusion criteria were followed-up for 12 months, with 3 visits programmed at baseline, 6 and 12 months. Baseline characteristics and caregiver's information were registered for every pt. Once identified total hours, the replacement cost method was used. **RESULTS:** A total of 330 pt were included, 74.2% men, mean age was 62.9 years. 82.4% were in NYHA class II, 16.4% NYHA class III and 1.2% NYHA class IV. A 28.5% needed support for daily living. Ninety four informal caregivers were identified, mean age of 58yo, mostly women (85.1%). Main relationship with caregiver was spouse/couple (77.7%), followed by son/daughter (14.9%). Number of weekly hours of main caregiver was estimated at 44.3 hours (40.6 hours for patients NYHA class II and 53.3 hours for patients NYHA class III-IV) and shadow prices values from 8-13€/hour. Total costs associated to informal caregiving increased between €21,298-€34,609 per pt of which between €18,892-€30,049 are informal costs associated with the main caregivers. Likewise, focusing on main caregivers, using the proxy-good method and the shadow prices shown, the cost of replacing services by care giving a Class II patient (2,115 yearly hours) were between €16,919-€27,494 for pts in NYHA class II; and between €22,230-€36,123 for caregiving a Class III or IV pt (2,779 yearly hours). **CONCLUSIONS:** Almost a 30% of pts with chronic symptomatic HF in Spain required support from an informal caregiver, which represents a significant burden for society and often has not been accounted for in economic evaluations of treatments for heart failure. Costs for informal care are associated with disease severity as measured by NYHA class.

PCV54

FIRST-YEAR DIRECT MEDICAL COST OF NEWLY DIAGNOSED STABLE ANGINA IN HONG KONG

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OBJECTIVES: To evaluate the first-year direct medical cost for diagnosis and management of newly diagnosed SA, to identify SA-related resource consumption pattern in public hospitals in the New Territories East Cluster in Hong Kong and in patients with and without procedures, and with comorbidities of hypertension (HTN), diabetes mellitus (DM) and hyperlipidemia. **METHODS:** A retrospective non-randomized study was conducted including patients documented with new diagnosis of SA in the Clinical Management System during January 2007 to December 2009. Subjects were followed for 1 year after diagnosis. Cost items studied consisted of hospitalization, clinic visits, diagnostic tests, radiological examinations, laboratory tests, therapeutic operations and medications. For statistical analyses, Mann-Whitney Tests were performed to compare medians of costs in patients with and without procedures, and with different comorbidities of HTN, DM and hyperlipidemia. P-value <0.05 was regarded significant. **RESULTS:** 89 patients were recruited. The mean first-year total direct medical cost of SA per patient was HKD$89,518, with the cost for hospitalization being the most dominant, accounting for 29.2%. Increase in complexity of disease would increase the total from HKD$47,744 for patients without procedures to HKD$115,342 for patients with procedures ($p<0.001$). For the three comorbidities interested, SA patients co-morbid with hyperlipidemia required more resources for the management, HK$98,295 ($p<0.001$). **CONCLUSIONS:** This study revealed the huge expenses incurred by SA in the first year of initial diagnosis on local public healthcare system, which has a significant implication on future resources allocation. Strategies for cost saving and preventive measures should be implemented.

PCV55

CLINICAL AND ECONOMICAL BURDEN OF OROPHARYNGEAL DYSPHAGIA AMONG STROKE SURVIVORS IN EUROPE AND NORTH AMERICA

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OBJECTIVES: Dysphagia commonly occurs following stroke and contributes to subsequent morbidity and mortality in stroke survivors with related substantial economical implications. Literature on the burden of this medical condition is scarce. This study aimed to identify the reported burden of dysphagia among stroke patients. **METHODS:** Epidemiological data were collected from publications in stroke and/or dysphagic patients and included prevalence of dysphagia and pneumonia, as its main complication. Economical data mainly included hospital length of stay, and pneumonia treatment costs. **RESULTS:** The data demonstrate stroke mostly occurs in people older than 65 years age (>75%). Prevalence and epidemiological figures varied widely from one publication to another. Indeed, up to 81% of stroke patients were diagnosed as dysphagic, depending on the method and time after stroke episode in which dysphagia is identified. Thus reportedly, up to 19.6 million stroke patients suffer dysphagia in North America and Europe. Studies identified that 40% to 50% of dysphagic stroke patients aspirate. In addition, pneumonia occurs in up to 51% of dysphagic stroke patients. Of course, dysphagic stroke patients who aspirate are at higher risk of pneumonia: up to 11-fold more than non aspirators. In Europe and North America, up to more than 10 million dysphagic stroke patients develop pneumonia. Furthermore hospital length of stay ranges from 5.07 to 10.55 days for stroke patients with dysphagia versus 3.26 to 4.74 days without dysphagia. The average hospital cost for pneumonia is $919 per day, totaling up to $96.5 billion in Europe and North America. **CONCLUSIONS:** The overall dysphagia burden is substantial worldwide, especially in Europe and North America. It is probably underestimated since only direct medical costs were included. However, it will most probably increase given the growing elderly population, which is at higher risk of having stroke.

PCV56

THE ECONOMIC BURDEN OF ATHEROTHROMBOSIS IN GREECE: RESULTS FROM THE THESIS STUDY

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OBJECTIVES: The aim of the present study is to estimate the annual direct and indirect costs in patients with a history of or at risk for atherothrombosis in Greece, using a bottom-up approach. **METHODS:** A multicentre, prospective, cost-of-illness study was conducted between January 2007 and December 2009. In this study, 800 patients with coronary artery disease (CAD) or cerebrovascular disease (CD) or peripheral artery disease (PAD) or multiple cardiovascular risk factors (MRF) were recruited from 11 major hospitals in Greece. All patients were followed up for 12 months. Resources used for the care of patients within the healthcare system and productivity losses during the follow-up period were recorded. The annual direct and indirect costs were calculated by combining these data with unit costs. **RESULTS:** The mean annual total cost was €5,940/patient (€5,416–€6,522). This cost ranges from €9,963/patient (€8,515–€11,868) for PAD group to €1,761/patient (€1,462–€2,232) for MRF group. The mean annual direct healthcare cost was €5,056 /patient (€4,653–€5,507). This cost escalates from €1,623 /patient (€1,319– €2,073) for MRF group to € 8,697 /patient (€7,648– €9,695) for PAD group. The annual direct healthcare costs was mainly driven by vascular intervention costs among CAD and PAD patients, (50.6% and 46.5%, respectively) and by the simple hospitalization cost among CD and MRF patients (67.7% and 35.7%, respectively). The mean annual indirect cost was €979 (€386– €1,395), €441 (€142- €835), €525 (€148 – €1,137) and €29 (€1- €87) per patient in the CD, CAD, PAD and MRF groups, respectively. The total annual expenditures related to atherothrombosis, in Greece, are estimated to be 7.5 billion € at a national level. **CONCLUSIONS:** The findings of the THESIS study indicate, for the first time, the high economic burden of atherothrombosis in Greece, since the direct healthcare cost related to atherothrombosis management accounts for almost 25% of annual healthcare expenditures.

PCV57

EPIDEMIOLOGICAL STRUCTURE, SOCIOECONOMIC EFFECTS AND BURDEN OF DISEASE IN PATIENTS WITH ORAL ANTICOAGULATION AND ATRIAL FIBRILLATION IN AUSTRIA

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OBJECTIVES: Atrial fibrillation (AF) is the most common arrhythmia in clinical practice and associated with a high risk of stroke. In Austria, about 130,000 people are affected by AF. The first aim was to create a patient flow with epidemiological data to close the research gap for Austria and further to estimate the total cost of patients (direct and indirect costs) with AF and recommended oral anticoagulation. **METHODS:** The model is based on these detected AF patients. The approach used is prevalence-based, which is usually forgone within the time horizon of one year. For 68% of these patients oral anticoagulation is recommended, but only 54% of patients in the high-risk group received an OAC therapy. The remaining patients get Aspirin (31%), other medication (5%) or no therapy (10%). Clinical-data and costs of the adverse events stroke and major bleeding were considered. Direct costs comprise all direct medical costs like consultation, lab test, inpatient costs, medication and treatment costs. Indirect costs represents costs for AF patients after stroke like care allowance and costs of nursing homes. The resource use was determined by literature and experts. All costs represent data from 2011. The burden of disease study is conducted from a societal perspective. **RESULTS:** The direct costs of AF patients amount to 51,972,668€ and the total costs inclusive indirect costs are 93,915,299€ for the time horizon of one year. **CONCLUSIONS:** With rising life expectancy the number of patients with AF and the prevalence of strokes will increase. Therefore the time has come to give greater attention to the epidemiological and socioeconomic burden of AF.

PCV58

THE IMPACT OF COMORBID MENTAL ILLNESS ON COSTS OF HEALTH CARE FOR INPATIENTS WITH HEART FAILURE

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OBJECTIVES: Interactions of mental illnesses and heart failure have been indicated. Mental illness has been shown to be a risk factor of heart failure. In addition, it may worsen the symptoms as well as compliance to the therapy of patients with heart failure. A recent study has showed that comorbid depression may be associated with higher medical costs. The purpose of this study was to assess the impact of comorbid mental illness on costs of health care for inpatients with heart failure. **METHODS:** A retrospective cohort study of inpatients with heart failure. Data were collected between July 1, 2008, and December 31, 2008 from 855 acute care hospitals in Japan. In total, 38,446 admissions of patients with heart failure in 855 hospitals were included in the analysis. We compared health care costs of 5 groups: 1) no mental illness; 2) antidepressant prescription only; 3) co-prescription of antidepressant and other psychotropic drugs; 4) antidepressant prescription and depression diagnosis recorded; and 5) anxiolytic or hypnotic prescription only. Statistical analyses were performed using JMP 8.0. **RESULTS:** Psychotropic drugs were used in 19,839 (51.6%) patients with heart failure. The average number of psychotropic drugs was 3.69 per hospitalization in heart failure inpatients. After adjustment for covariates, patients prescribed with psychotropic drugs had significantly higher costs than patients not prescribed. **CONCLUSIONS:** This study suggested that comorbid mental illness is associated with higher medical costs.