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A COST-OF-ILLNESS ANALYSIS OF ATRIAL FIBRILLATION IN SWEDEN
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OBJECTIVES: Atrial fibrillation (AF) is the most common cardiac arrhythmia. The prevalence among adults is estimated to be $\geq 1\%$ in Sweden, increasing with age to nearly 10% among those over 80. The proportion of elderly will rise in coming years resulting in a higher prevalence of AF and probably increasing costs to the Swedish society. The aim of the present study was to estimate the annual cost of AF from a Swedish perspective. In addition, validity of data and problems regarding diagnosis coding were evaluated. **METHODS:** Prevalence-based cost-of-illness analysis of AF based on year 2007. Direct medical and non-medical, as well as indirect costs, were considered. Data were based on information from the literature, Swedish registries, and an expert panel. **RESULTS:** The annual total cost of AF was estimated to be SEK6600 million (approximately €600 million); direct medical costs 84%, direct non-medical costs 4%, and indirect costs 12%. The key driver (55%) of the result was the direct cost of heart failure and stroke, both having developed as a consequence of AF. Data from the registries were somewhat difficult to interpret due to possible miscoding or ambiguity in data inputs. In particular there was uncertainty associated with the coding of primary and secondary diagnosis as the cause-and-effect relationship varies between patients. **CONCLUSIONS:** This is the first comprehensive analysis of the direct and indirect costs of AF and its main complications in Sweden. The results showed the annual cost of AF is very high, but it is still likely to be underestimated as a conservative approach was applied in the analysis. This suggests further research is needed.

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CHRONIC THROMBOEMBOLIC PULMONARY HYPERTENSION (CTEPH) COST OF ILLNESS IN THE PRIVATELY-INSURED POPULATION IN THE UNITED STATESKirson NY¹, Birnbaum HG¹, Ivanova JP², Schiller M¹, Waldman T¹, Williamson T³¹Analysis Group, Inc., Boston, MA, USA, ²Analysis Group, Inc., New York, NY, USA, ³Bayer HealthCare Pharmaceuticals, Wayne, NJ, USA

OBJECTIVES: Estimate annual direct costs for privately-insured US chronic thromboembolic pulmonary hypertension (CTEPH) patients and matched controls. **METHODS:** From a privately-insured claims database (>8 million beneficiaries, 2002–2007), 423 CTEPH patients were identified as having: ≥ 2 claims for pulmonary hypertension (ICD-9: 416.0, 416.8); ≥ 1 claim for pulmonary embolism (ICD-9: 415.1, V12.51; ICD-9 procedure: 38.7; CPT-4: 36010, 37620, 75825, 75940; HCPCS: C1880) within 12 months prior or 1 month after the initial pulmonary hypertension claim (index date); ages 18–64. Patients with CTEPH were matched demographically to controls without pulmonary hypertension. All were required to have continuous coverage for 6 months before (baseline) and 1 month after index date. A variable study period was used to follow patients as long as continuously eligible; mean follow-up was 20.5 months. Chi-squared tests were used to compare baseline comorbidities. Wilcoxon rank-sum tests were used for univariate comparisons of direct (medical and pharmaceutical) patient-month costs to insurers for CTEPH patients vs. controls. **RESULTS:** Average age for patients with CTEPH was 52.4 years, and 58.20% were women. Compared with controls, CTEPH patients had significantly higher baseline comorbidity rates (e.g., essential hypertension, congestive heart failure, chronic pulmonary disease, and diabetes) and a higher Charlson Comorbidity Index. Mean (median) direct patient-month costs were \$4456 (\$1305) for CTEPH patients and \$457 (\$90) for controls ($p < 0.0001$), yielding excess costs of \$8441 (\$215). Inpatient services accounted for 53%, outpatient services for 33%, and drug costs for 12% of CTEPH patient-month direct costs. Circulatory/respiratory system-related patient-month costs were \$2289 (\$617) among CTEPH patients and \$110 (\$7) among controls ($p < 0.0001$), yielding excess costs of \$2179 (\$5610). **CONCLUSIONS:** Patients with CTEPH had substantially higher costs than matched controls. Circulatory/respiratory system-related costs represented 51% of the costs of patients with CTEPH and 54% of the difference in costs between patients with CTEPH and controls.

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THE COST-OF-ILLNESS OF ATRIAL FIBRILLATION: A SYSTEMATIC REVIEWWolowacz SE¹, Samuel M¹, Brennan VK¹, Jasso-Mosqueda JG², Van Gelder IC³¹RTI-Health Solutions, Manchester, UK, ²Sanofi-Aventis, Paris, France, ³University Medical Center Groningen, Groningen, The Netherlands

OBJECTIVES: Atrial fibrillation (AF), the most common cardiac arrhythmia, is strongly associated with increased risk of stroke and thromboembolism. AF prevalence increases with age. In many countries there is a growing awareness of the economic burden associated with AF in light of ageing populations and constrained public finances. This study searched to review recent estimates of the cost of illness associated with AF. **METHODS:** A systematic review was performed of Medline, EMBASE, Cochrane Library, HS Economic Evaluation, HTA and DARE databases, and conference abstracts, from 1990 to date. Total costs, direct and indirect costs were extracted. Inclusion criteria were AF or atrial flutter patients. This included: persistent, permanent and paroxysmal AF. Exclusion criteria were acute onset AF and Post operative AF. **RESULTS:** A total of 875 records were retrieved and 34 studies were included. The burden of AF is high and is increasing over time. Direct cost estimates ranged from \$2,000 to \$12,000 per patient per year in the USA, and from €400 to €3,000 in Western Europe. This is high or equivalent compared to estimates for other chronic

conditions as diabetes (CAD\$306; Canada 1999) and chronic angina (US\$4949; USA 1999). The direct cost of managing AF represented 0.9%–2.4% of the national health care budget for the UK (2000) and had approximately doubled over the previous 5 years. Inpatient care and interventional procedures represented the largest cost component (where reported), accounting for 50% to 70% of total costs. In the USA, AF hospitalisations alone cost an estimated \$6.65 billion per annum (2005). If indirect costs were included, cost estimates increased by up to 20% over direct costs alone. **CONCLUSIONS:** The economic burden of AF is high in comparison to other chronic conditions, and is expected to increase over time due to population ageing; hospitalisations represent the main cost driver.

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MANAGEMENT OF ACUTE ISCHEMIC STROKE (IS) AND ASSOCIATED COSTS OVER A 12-MONTH PERIOD IN FRANCESaragoussi D¹, Guillaume C², Dorey J³, Toumi M⁴¹Lundbeck company, Paris, France, ²Lundbeck SAS, Paris, France, ³Creativ-Ceutical, Paris, France, ⁴University Claude Bernard Lyon I, Villeurbanne Cedex, France

OBJECTIVES: Assess clinical management and associated economic burden over a 12-month period following the acute phase of ischemic stroke in French primary care patients. **METHODS:** A questionnaire covering the course of patient management from initial diagnosis through one year of follow up was sent to 100 general practitioners from 4 representative regions of France. Each GP was asked to complete a questionnaire for 2 patients with IS between April 1, 2005 and March 31, 2006 using one-year data recorded from their own files. **RESULTS:** The sample size consisted of 196 patients, almost all of whom were hospitalized. Mean hospital LOS was 23 days. The first service most patients (81.3%) were admitted to was the emergency unit. All had imaging tests (96.8%). With the exception of specialised stroke units, severity or dependency scales were infrequently administered upon arrival. At discharge, 55% of patients went home and 25% went to rehabilitation centres. During the 12-month's following IS, rehospitalisation for reasons relating to stroke was observed in 16% of patients. One year after discharge, per patient costs of IS amounted to €18,459 (15,762–21,157), with the acute phase accounting for 41%, rehabilitation 30% and ambulatory care 15%. Drug costs were the least expensive element of IS (2% of total cost). **CONCLUSIONS:** Results observed were consistent with previously published data. Higher mean length of stay seen in the present study may be explained by the averaging of geriatric and re-education unit LOS (32 and 62 days, respectively) versus 12 days in specialized stroke units. The present study confirmed that most patients are not cared for in specialized stroke units despite acknowledgement that such units offer improved management (better assessment, lower LOS). Costs incurred during the year following IS were mainly due to disability after the acute phase. Medication cost was not significant.

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PREVALENCE AND ECONOMIC BURDEN OF HYPERTENSION IN PATIENTS WITH METABOLIC SYNDROME IN SPAIN: AN EPIDEMIOLOGICAL COST-OF-ILLNESS MODELAlegria E¹, Piñol C², Langham S³, Stevens W⁴, Jeffries D⁵¹Clinica Universitaria de Navarra, Pamplona, Navarra, Spain, ²Bayer HealthCare, Barcelona, Spain, ³Independent Consultant, Manchester, UK, ⁴Independent Consultant, Boston, MA, USA, ⁵MRC Tropical Disease Research Unit, Banjul, Gambia

OBJECTIVES: To assess the current (2008) and future (2020) prevalence and cost of illness of hypertension (HT) in patients with metabolic syndrome (MetS) and the impact on cost-of illness under different potential treatment patterns. **METHODS:** An age, sex and risk group structured prevalence based cost-of-illness model was developed. Risk groups were HT patients with or without MetS. Published information on prevalence, incidence of cardiovascular events (CVE), prevalence of type 2 diabetes (DM2), treatment patterns and cost of management in patients with HT and MetS in Spain was used for 2008 and 2020. The direct medical costs of treatment of HT and associated sequelae are presented in 2008 Euros. **RESULTS:** The prevalence of HT with MetS in Spain was 11% in 2008 and 22% in 2020. The prevalence of MetS HT patients was 23% in 2008 and 45% in 2020. Prevalence increased markedly with age. The incidence of CVE per 1000 subjects was two times higher among HT patients with MetS (25% with vs. 13% without) and prevalence of DM2 per 100 subjects was five times higher among HT patients with MetS (28% with vs. 5% without). The cost-of-illness of HT, including the cost associated with treating CVE and DM2, was €4600 million in 2008 and €8,200 million in 2020. Those with MetS made up 42% and 65% of this cost. An increased use of newer antihypertensives resulted in a reduction in CVE and cases of new onset diabetes. **CONCLUSIONS:** HT patients with MetS currently make up around a quarter of the HT population in Spain but account for nearly half of the costs. Costs will increase in the future due to an aging population and an increase in the prevalence of MetS. The choice of antihypertensive treatment for this high risk patient population has become an important consideration with the newer antihypertensives demonstrating better adherence reducing the risk of CV disease and reduced risk of treatment-related new onset diabetes.