number of future HCV related complications, reduce costs and increase the number of QALYs experienced.

PHS13

COMPARATIVE ANALYSIS OF DIRECT COST STUDIES ON RHEUMATOID ARTHRITIS IN TURKEY

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OBJECTIVES: The purpose of this study is to compare the direct cost parameters on rheumatoid arthritis (RA) by using two studies in Turkey conducted via patient database record system and via expert opinion methodology in 2010. **METHODS:** The data included in this study was collected upon the opinions of 22 rheumatologists from 53 clinics in Turkey. The other study was completed by Turkish Health Insurance Funds Database (THIFD) —1920 patients selected for a 6-month period. **RESULTS:** Based on the patient database, 5% of the patients were hospitalized and 42% had outpatient visit. According to expert opinion, 7.2% of the patients were hospitalized and 77.12% had outpatient visit. Patient records state that non-COX inhibitors (78%) and immunosuppressants (71%), and disease-modifying anti-rheumatic drugs (DMARDs) (11%) of the patients were prescribed and biologic DMARDs are not specifically stated. Based on the rheumatologists, non-COX inhibitors (34.52%), immunosuppressants (39.76%), methotrexate (80.86%), sulfasalazine (31.76%) and biologic DMARDs (17.15%) were prescribed. Total annual cost (EUR€2,386) results of the patient database system comprised of pharmacy costs (EUR€1,747), outpatient costs (EUR€360), and inpatient costs (EUR€252). Annual cost from expert opinion was EUR€2917.03 with outpatient & inpatient costs (EUR€206.82) and pharmacy and prostheses/orthoses cost (EUR€2710.21). **CONCLUSIONS:** Expert panel methodology's important way to observe the real world practice. It's observed that expert panel and patient database results are in line with each other. Due to the distribution of the pharmaceuticals, a difference of only EUR€531.03 was found. It can be observed that biologic DMARDs treatments are perceived to be prescribed more, however according to patient data, prescribed ratio of biologic DMARDs is relatively low. THIFD is used to extract patient costs where patient records are used for controlling reimbursement criteria, so some of the data may be misleading. Accurate performing of coding is key issue to minimize possible bias in use of patient data.

PHS14

COMPARATIVE ANALYSIS OF DIRECT COST STUDIES ON ANKYLOSING SPONDYLITIS (AS) IN TURKEY

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OBJECTIVES: The purpose of this study is to compare the direct cost parameters on ankylosing spondylitis (AS) by using two studies in Turkey conducted via patient database record system and via expert opinion methodology in 2010. **METHODS:** The data included in this study was collected upon the opinions of 22 rheumatologists from 53 clinics in Turkey. The other study was completed by Turkish Health Insurance Funds Database (THIFD) —1920 patients selected for a 6-month period. **RESULTS:** Based on the patient database, 7% of patients were hospitalized and 46% had at least one outpatient visit. According to expert opinion, 8.2% of the patients were hospitalized and 66% had outpatient visit. Patient records state that non-COX inhibitors (71%), and disease-modifying anti-rheumatic drugs (DMARDs) (35%), are prescribed. Based on the rheumatologists, non-COX inhibitors (81.37%) and immunosuppressant (7.52%), methotrexate (13.21%), sulfasalazine (40.24%), non-steroidal anti-inflammatory drug (81.37%) and biologic DMARDs (24.95%) were prescribed. Total annual cost (EUR€4,233) results of the patient database comprised of pharmacy costs (EUR€3,760), outpatient costs (EUR€297), and inpatient costs (EUR€155). Annual cost from expert opinion was EUR€3,565.91, with outpatient and inpatient costs (EUR€239.57), and pharmacy and prostheses/orthoses cost (EUR€3,326.33). **CONCLUSIONS:** Expert panel methodology's important way to observe the real world practice. It's observed that expert panel and patient database results are in line with each other. Due to the distribution of the pharmaceuticals, a difference of only EUR€239.58 was found. It can be observed that biologic DMARDs treatments are perceived to be prescribed more, however according to patient data, the prescribed ratio of biologic DMARDs is relatively low. THIFD is used to extract patient costs where patient records are used for controlling reimbursement criteria so some of the data may be misleading. Accurate performing of coding is key issue to minimize possible bias in use of patient data.

PHS15

ALL-CAUSE AND DISEASE-RELATED COSTS ASSOCIATED WITH RECURRENT VENOUS THROMBOEMBOLISM

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OBJECTIVES: To describe the real-world clinical complications associated with recurrent venous thromboembolism (VTE) and to quantify the incremental direct all-cause and disease-related health care costs associated with recurrent VTE. **METHODS:** An analysis of health care insurance claims from the Ingenix *IMPACT*database was conducted. Between January 2004 and September 2008, subjects aged ≥18 years on the date of first recurrent VTE diagnosis requiring hospitalization (index recurrent deep vein thrombosis [DVT], pulmonary embolism [PE], or both) with ≥12 months of baseline observation prior to the index recurrent VTE were matched 1:1 with control VTE patients without recurrence, based on exact matching factors and propensity scores. The proportion of patients with post-thrombotic syndrome (PTS) was calculated for up to 1 year and compared between the two groups. All-cause health care and disease-related costs (thrombocytopenia, superficial venous thrombosis, venous ulcer, pulmonary hypertension, stasis dermatitis, and venous insufficiency) per patient per year (PPPY) were also calculated and compared between the two groups. **RESULTS:** The recurrent VTE and VTE control cohorts (8,001 subjects each) were well matched for age, gender, comorbidities, VTE risk factors distributions, and baseline health care costs. The risk of PTS was 18.1% for the recurrent VTE cohort and 6.8% for the no recurrent VTE cohort (risk ratio: 2.7 [2.4 - 2.9]). Patients with recurrent VTE had significantly higher average PPPY all-cause costs compared to control patients (mean: $86,744 versus $37,525, cost difference=$49,219; 95% CI=46,253–51,989). Corresponding disease-related health care costs PPPY were also significantly higher for the recurrent VTE group (mean $11,120 versus $1,262, cost difference=$9,858, 95% CI=$9,081-$10,476) and represented 20.0% ($9,858 of $49,219) of the all-cause cost difference between the two groups. **CONCLUSIONS:** In this large matched-cohort study, recurrent VTE patients had a significantly higher risk of PTS compared to VTE control patients and were also associated with a significant health care cost burden.

PHS16

A REAL-WORLD ECONOMIC ANALYSIS OF THE COST IMPLICATIONS OF SWITCHING FROM SEVELAMER HYDROCHLORIDE TO LANTHANUM CARBONATE IN THE BUNDLED REIMBURSEMENT SCHEME

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OBJECTIVES: The phosphate binders sevelamer hydrochloride (SH) and lanthanum carbonate (LC) will be included in the Medicare bundled reimbursement scheme from 2016. The aim of this study was to evaluate the cost implications of switching patients from SH to LC monotherapy. **METHODS:** A *post hoc* analysis of the cost implications of switching from SH to LC monotherapy was performed using data from a 16 week, phase 4, real-world clinical study (n = 953). Daily LC doses were titrated to maintain the level of phosphate control achieved with SH at baseline. Costs of mean daily drug doses were calculated using the average wholesale price (LC 1000 mg: $8.82; SH 800 mg: $3.71). Analyses were performed by baseline SH dose group (per mean daily dose) and by real clinical doses of SH and LC. **RESULTS:** Mean (SD) serum phosphate levels were 5.88 (1.69) mg/dL at baseline and 5.93 (1.85) mg/dL after 16 weeks of LC treatment. Mean doses and associated costs by baseline SH dose group were as follows: SH 2400–4800 mg/day: 4051 mg/day ($18.79/day) versus LC 2445.4 mg/day ($21.57/day); SH >4800–7200 mg/day: 7047 mg/day ($32.68/day) versus LC 2823 mg/day ($24.90/day); SH >7200–9600 mg/day: 9253 mg/day ($42.91/day) versus LC 3018 mg/day ($26.62/day); SH >9600 mg/day: 13 150 mg/day ($60.98/day) versus LC 3156 mg/day ($27.84/day). Analysis by real clinical doses revealed that LC 3000 mg/day ($26.46/day) is less costly than SH 6400 mg/day ($29.68/day) and 7200 mg/day ($33.39/day), but not SH 5600 mg/day ($25.97/day). At baseline, 65% of patients were receiving SH ≥6400 mg/day. **CONCLUSIONS:** Our analysis showed that LC is more cost-effective than SH in patients taking SH ≥6400 mg/day (65% of patients at baseline). Switching these patients to LC 3000 mg/day would offer cost savings, a reduced daily pill burden (3 vs >8/day) and effective maintenance of phosphate control.

PHS17

ECONOMIC EVALUATION OF USING BRANDED TAXOTERE® VERSUS. GENERIC DOCETAXEL: BASED ON DECISION TREE MODEL

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OBJECTIVES: To evaluate the cost-effectiveness of prescribing branded Taxotere®compared to its generic counterpart docetaxel for patients diagnosed with breast cancer in the UK NHS. **METHODS:** A previously published decision tree model was populated and developed with the Vial et. al. and Brown et. al. trial data to assess the cost-effectiveness of using branded Taxotere®versus its generic counterpart docetaxel from the UK NHS perspective. **RESULTS:** If the branded Taxotere® was promoted as the first-line therapy, it would cost the UK NHS £411.54 per vial per patient with 0.434 QALY gain compared to £412.98 with 0.418 QALY gain if the generic docetaxel was promoted instead and failed the therapy. Although the acquisition cost of docetaxel is more than 50% less than that of Taxotere®, promoting the generic docetaxel based on its lower acquisition cost, only, would result in increasing the total health care cost compared to Taxotere®. **CONCLUSIONS:** Based on the decision tree model generated in this study, promoting the branded Taxotere® is more cost-effective compared to its generic counterpart docetaxel. This should be considered for implementation in practice and for future guidelines.

PHS18

ECONOMIC BURDEN OF OTITIS MEDIA AMONG CHILDREN IN THE UNITED STATES: RESULTS FROM A NATIONAL DATABASE

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OBJECTIVES: Previous studies have documented the impact of otitis media among children, but recent estimates of cost of otitis media (OM) among children in the United States (US) are not available. The objective of this study was to estimate the incremental direct medical expenditures of treating OM among children in the US. **METHODS:** Retrospective analysis was conducted using the 2010 Medical Expenditure Panel Survey (MEPS) data. Among all children (age<18 years; n=8,710), those with OM were identified using International Classification

of Diseases (ICD)-9 diagnosis codes 381 or 382. Incremental total expenditures associated with OM were estimated using a regression model adjusting for age, gender, race, ethnicity, education, geographic region, insurance status and number of medications used (proxy for comorbidity). Given the skewed distribution of expenditure variables, multiple model specifications including ordinary least squares regression, generalized linear model (GLM) with Poisson, gamma and negative binomial variance functions were evaluated. **RESULTS:** The prevalence of OM among children in the US was estimated at 11.32%, i.e., 8.47 million persons (95% CI: 10.30% to 12.33%). A majority of children with OM were male (51.7%), white (84.2%), and insured (97.3%) with mean age of 4.7±0.20 years and education of 0.9±0.11 years. In unadjusted analysis among patients with OM, physician office visits comprised the largest proportion of total expenditures at $769.06 (SE: 54.99), followed by prescription medications at $606.56 (SE: $41.72), and inpatient visits at $500.73 (SE: $148.42). After controlling for covariates, children with OM had 48% higher total expenditures than those without OM (Estimate: 1.48; p=0.001). The annual adjusted mean incremental total expenditure associated with OM was $543.10 (SE: $192.0; p=0.005) per person. **CONCLUSIONS:** Given the prevalence of OM in children and its associated incremental expenditures, the annual direct medical expenditure for treating OM in children is estimated at approximately $4.6 billion in 2012 US dollars.

PHS19

DIRECT MEDICAL COSTS ASSOCIATED WITH EXACERBATIONS RELATED TO NON-CYSTIC FIBROSIS BRONCHIECTASIS

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OBJECTIVES: To estimate direct medical costs in non-cystic fibrosis bronchiectasis (NCB) patients with exacerbations. **METHODS:** An observational, retrospective cohort study was conducted using data from MarketScan claims database. Bronchiectasis patients were identified as those with a medical claim with ICD-9 codes of 494.0 or 494.1 anytime between July 1, 2009 to June 30, 2010. The first bronchiectasis-related claim during this period was defined as the index event. All patients had to have no other bronchiectasis related medical claim 12-months before the index event and no cystic fibrosis related medical claim (ICD-9 code:277.0) 12-months before and after index event. NCB patients were divided into two cohorts. Each NCB patient with exacerbation (NCB-E) was matched to three NCB patients without exacerbations (NCB-W) on geographic region, health plan and gender. Medical resource use and expenditures were estimated for 12-months before and after index event and compared between the two cohorts using non-parametric univariate statistical tests. **RESULTS:** 897 NCB-E patients were matched to 2,691 NCB-W patients. NCB-E patients were older (67 vs. 64, p<0.01), had greater overall comorbidity as estimated by the Charlson's comorbidity score (1.83 vs. 1.66, p=0.01), and respiratory/chest-related symptoms (73% vs. 66%, p<0.001) at baseline compared to NCB-W patients. Total average costs per patient post index-event were significantly greater among NCB-E versus NCB-W patients ($35,718 vs. $26,868). After adjusting for baseline health care expenditures, the overall annual average incremental burden due to exacerbations were estimated to be $7,643. Of this, inpatient hospital costs accounted for $5,772 or 75% of this burden. Bronchiectasis-related total costs were also significantly (p<0.001) higher in the follow-up period among NCB-E patients compared to NCB-W patients ($4,609 vs. $1,210), even after adjusting for baseline consumption. **CONCLUSIONS:** NCB patients with exacerbations have greater medical expenditures than those without. Effective management of exacerbations may be the key in controlling economic burden in this patient population.

PHS20

DIRECT MEDICAL COSTS OF DIABETIC COMPLICATIONS IN THE UNITED STATES

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OBJECTIVES: To estimate the direct medical costs associated with managing complications of type 2 diabetes in the United States. **METHODS:** A combination of direct data analysis and microcosting was used to estimate costs for an event leading to either a hospital admission or outpatient care, and the post-acute care associated with managing macrovascular, microvascular, and other complications. Data were obtained from many sources, including inpatient and emergency department care databases, national physician and laboratory fee schedules, government reports, and published literature. For each complication, the event year costs derived refer to those associated with the acute episode and, when appropriate, include subsequent ongoing care provided within the first year following the acute episode. Annual costs after the first year for the continued management of complications were also estimated. All costs are reported in 2012 USD. **RESULTS:** Annual costs accrued per patient in the year of the event were estimated for the following macrovascular complications: myocardial infarction $56,445, ischemic stroke $42,119, congestive heart failure $23,758, ischemic heart disease $21,406, and transient ischemic attack $7,388. Event year costs per patient for microvascular complications were: chronic kidney disease $71,714, lower extremity amputations $9,041, blindness $2,862, and diabetic foot ulcers $2,147. Cost estimates of a medically managed hypoglycemic episode were: $176, $1,311, and $16,478 for a mild, moderate, or severe (i.e., requiring hospitalization) episode. **CONCLUSIONS:** This study provides updated and additional estimates of the cost of diabetic complications in 2012 USD, following the methodology used to generate prior cost estimates in 2000 USD referenced in many diabetes economic models (O'Brien et al. *Clin Ther* 2003;25(3):1017-1038). Managing complications results in substantial costs to the health care system, as macrovascular complications yield high inpatient care costs in the event year, and long-term management of complications such as chronic kidney disease lead to substantial ongoing annual costs.

PHS21

RENAL CELL CARCINOMA TREATMENT IN SÃO PAULO, BRAZIL: PATTERNS AND COSTS OF HOSPITALIZATION

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OBJECTIVES: São Paulo is a Brazilian state with the largest number of cancer reference hospitals and hosts 21% of country population. This study aims to describe hospitalization patterns and costs for renal cell carcinoma (RCC) in public hospitals in São Paulo state, Brazil. **METHODS:** A retrospective analysis of São Paulo public hospital admissions for RCC was developed according to ICD-10 classification (C64) as reported in Brazilian Hospital Information System (SIH/DATASUS) database from January 2007 to December 2011. Admissions were categorized into surgical (containing any surgical procedures codes at hospitalization data eg.: tumor excision, biopsy, etc.) or clinical (all non-surgical eg.: chemotherapy, infection treatment, anemia, etc.). Costs represent federal reimbursement values for hospitalizations (includes medical procedures, exams, medications and taxes), presented in 2012 Brazilian Real (BRL). Average 2012 exchange rate was 1,9544BRL/USD. **RESULTS:** In the period, 4,138 hospital admissions were identified (951, 1,126, 1,207, and 854 for 2007, 2008, 2009, and 2011, respectively), and total cost was 5,472,534BRL, which represents 0.78% of all cancer in-hospital treatment in the state. Mean cost per patient was 1,326BRL, 675BRL, and 1,854BRL for all hospitalizations, clinical and surgical procedures, respectively. Surgical procedures were responsible for 55.07% of cases, and 77.29% of total costs, with partial or total nephrectomy representing the main cause (48.9%). Mean length of stay was 6.99 days. In-hospital mortality rate was 9.98% for all cause (17.7% and 3.69% for clinical and surgical procedures, respectively). When compared to the national cases, São Paulo represents 29.74% of them, while representing 33.18% of total national hospitalization costs related to RCC. **CONCLUSIONS:** RCC hospitalizations costs in São Paulo are responsible for less than 1% of all cancer in-hospital treatments in the state, which may suggest under-diagnosing when compared to international incidence rates. São Paulo is an important RCC treatment center in Brazil, capturing about one third of country resources.

PHS22

COSTS AND HEALTH CARE RESOURCE UTILIZATION ASSOCIATED WITH ASTHMA IN CANADA: A SYSTEMATIC REVIEW

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OBJECTIVES: To determine the cost and health care resource utilization associated with asthma management in Canada. **METHODS:** A systematic literature search of PUBMED, EMBASE and EMCare electronic databases using relevant search strategy was conducted from 2000 until 2011 to identify articles, published in English, that reported the data on the clinical and economic burden of asthma in Canada. Two investigators independently screened citations, reviewed studies, assessed study quality and abstracted data. Heterogeneity in study design, data sources and asthma definition precluded meta-analysis of study outcomes. All costs were reported in Canadian dollars and inflated to 2011. **RESULTS:** Of the 570 citations identified, 67 full-text articles were reviewed, of which 33 studies met inclusion criteria. Both children and adults with asthma averaged less than one emergency department (ED) visit per patient per year. In children, frequency of visits was largely influenced by the presence of prior asthma exacerbations. In adults, increased ED visits were associated with inappropriate use of asthma medication. ED visit rates were significantly higher in women than in men and, increased with age. Hospitalization rates in children decreased with age and patients with persistent asthma were more than one and a half times admitted more often than those with non-symptomatic asthma. Average hospitalization costs per acute asthma episode ranged from $458 to $923 and the average costs for ED visit per acute asthma episode ranged from $219.08 to $276.76, excluding medication cost. The average annual cost of asthma medication was $230.58 per patient. Annual productivity loss days in adult asthma patients varied from 12 in employed persons to 20 in students and 49 in disability pensioners. **CONCLUSIONS:** The available evidence shows that the asthma-related costs, both direct and indirect remain substantial. The overall burden varies based on whether studies reported costs from the perspective of an individual asthmatic or from the population level.

PHS23

MELANOMA HEALTH CARE PATHWAYS IN AN ITALIAN POPULATION

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OBJECTIVES: To describe treatment patterns, direct costs and comorbidities in a population of patients with melanoma. **METHODS:** Starting from ARNO Observatory, an Italian population-based patient-centric system through record linkage of 11 million inhabitants, we identified a cohort of patients with melanoma (ICD-9 code: 172 and/or V10.82) during 2009. Discharge records, reimbursed prescription patterns, lab tests and diagnostic examinations were