

resource utilization and cost to determine whether functional decline is associated with increased healthcare resource utilization and costs. **METHODS:** Medicare and commercial patients who received an endothelin-receptor antagonist (ERA), phosphodiesterase type 5 inhibitor (PDE5) or prostacyclin (PGI2) and reported a medical claim with an ICD-9-CM of 416.0, 416.8 or 416.9 or a medical claim indicating right heart catheterization (RHC) were identified from pharmacy and medical claims data from 2009 through 2013. The date of initial therapy served as the index date. Using provider-reported data from prior authorization forms required for prescribing advanced PAH therapies listed above, the WHO-FC was found for 437 patients (FCII=99; FCIII=282; FCIV=56). **RESULTS:** Linear models indicated that the FCIV cohort averaged significantly more inpatient admissions ($P<0.001$), longer lengths of stay ($P<0.01$) and more ER visits ($P<0.01$) than the FCII or FCIII cohorts. Costs analyses indicated that FCIV had significantly higher medical costs than FCII (\$130,572/year vs \$120,588/year) ($P=0.002$) and significantly higher total costs (pharmacy + medical) (\$180,828/year vs \$162,072/year) ($P=0.004$). **CONCLUSIONS:** PAH patients demonstrated a high level of utilization and costs. Disease severity, indicated by WHO-FC, is associated with higher utilization and costs for FCIV patients. Only small differences were found between FCII and FCIII. The FCIII cohort was twice as large as the FCII cohort. This suggests difficulty differentiating between these two FCs and potential bias in the sampling when relying on the prior authorization form for this clinical information.

PRS31

BURDEN OF SYMPTOMATIC COPD PATIENTS IN SPAIN: DATA FROM CONTINUING TO CONFRONT COPD INTERNATIONAL PATIENT SURVEY 2012-2013

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OBJECTIVES: The Continuing to Confront COPD International Patient Survey estimated the prevalence and burden of chronic obstructive pulmonary disease (COPD) across 12 countries. The objective of this sub-study was to estimate the humanistic and economic burden associated with dyspnoea in Spanish patients with COPD. **METHODS:** Spanish COPD patients from a cross-sectional population-based survey conducted between November 2012 and May 2013, including subjects >40 years fulfilling a case-definition of COPD based on a self-reported physician diagnosis or symptomatology were included. Patients were further classified as no/mild dyspnoea (mMRC <2) and moderate/severe dyspnoea (mMRC >2), according to modified Medical Council Scale (mMRC) score. Impact of dyspnoea on health-related quality of life (QoL) measured with COPD Assessment Test (CAT) and costs were compared between the two groups. Direct healthcare costs included moderate (community treated) and severe COPD exacerbations (requiring emergency room visits and/or hospitalization), primary care visits, COPD treatment including oxygen use, and immunization in the previous 12 months. Indirect costs included work loss estimated using the Work Productivity and Activity Impairment Scale. **RESULTS:** 303 Spanish subjects were included; mean age 65.1 years old, 57% male and 73.6% self-reported moderate to very severe COPD. 47.1% of the subjects included were classified as having moderate/severe dyspnoea. These dyspnoeic patients showed a higher impact on QoL (CAT score >20): 57.2% vs 28.8%, as well as higher costs than patients reporting no/mild dyspnoea: direct costs: 3,938€ vs 1,818€ ($p<0.001$), indirect costs: 3,596€ vs 3,011€ ($p=0.426$), societal costs: 7,534€ vs 4,828€ ($p=0.004$). **CONCLUSIONS:** The frequency of moderate/severe dyspnoea is high among Spanish COPD patients. Dyspnoea was associated with higher impact on QoL and higher societal costs. Healthcare strategies targeted to improve dyspnoea symptoms could reduce the burden associated with COPD.

PRS32

COST OF SMOKING IN ASIA

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OBJECTIVES: The current project aims to (1) evaluate cost burden of smoking to Asia and (2) increase public awareness on smoking and its clinical and economic impact to the society. **METHODS:** This is a retrospective literature review aiming to investigate the published work related to the burden of smoking to smokers since 2000. All published articles related to cost of smoking were reviewed. The current costs of each pack of cigarettes in the target Asia-Pacific countries (Hong Kong, Malaysia, Thailand, Philippines, South Korea, Singapore and Australia) were documented. Both tobacco cost per smoker (out-of-pocket) and the direct health care cost per smoker were estimated. The prevalence of smokers in each country was documented and for the calculation of the out-of-pocket cost per each smoker based on published data. The direct health care expenditure was documented based on the published data. We also estimated the cost of saving if the smoker stops smoking according to the specific age and the expected life expectancy in each country. All cost estimation was based on the year 2014. **RESULTS:** In 2014, the estimated annual government expenditure on managing smoking related diseases was Hong Kong (USD 1.45 billion), Malaysia (USD 1.11 billion), Thailand (USD 8.48 billion), Philippines (USD 7.70 billion), South Korea (USD 1.61 billion), Singapore (USD 0.72 billion) and Australia (USD 1.69 billion). Among the 7 countries, the smokers spend the most in Australia, Singapore and Hong Kong. The annual out-of-pocket cost for smokers for one pack per day was Hong Kong (USD 2620), Malaysia (USD 1460), Thailand (USD 1095), Philippines (USD 511), South Korea (USD 1825), Singapore (USD 3650) and Australia (USD 6935). **CONCLUSIONS:** The cost burden of smoking is high from both smokers and government perspectives. Reduction of the smoking population can significantly alleviate the disease burden and reduce public health expenditure.

PRS33

EXAMINING HEALTH SYSTEM AND RESOURCE UTILIZATION AND MEDICAL MANAGEMENT OF PATIENTS IDIOPATHIC PULMONARY FIBROSIS IN ONTARIO: A PRELIMINARY ANALYSIS

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OBJECTIVES: To collect health care resource utilization (HCRU) in the management of idiopathic pulmonary fibrosis (IPF) patients. **METHODS:** A retrospective, longitudinal, cohort study design via chart review analysis of anonymized IPF patient records is being conducted in order to collect healthcare resource data from a major IPF treatment centre in Ontario, Canada. A convenience sample of 90 IPF patients was selected with inclusion criteria of adult age at diagnosis having a confirmed diagnosis of IPF, and minimum of one respirologist visit. Demographics and HCRU data were collected with descriptive statistics to be presented. Costs are presented in 2014 Canadian dollars. **RESULTS:** For the preliminary analysis, 45 IPF patients met the study inclusion criteria. 30 were male with the mean age at diagnosis being 71.3 years (range 39-89 years). Information about IPF treatments, supportive medications, tests/procedures, physician visits and hospitalizations were obtained from the charts. The overall cost of the cohort was \$873,936, with a mean cost per patient of \$19,421 (\$986-\$117,004, ±\$18,961). The 30 day cost per patient was \$337. IPF treatments accounted for more than half the total cost (\$494,416). Patients were stratified by disease severity at diagnosis and followed over progression. 33 were diagnosed as initially having mild disease, and 12 had moderate disease. Patients with mild disease were followed an average of 65.8 months and had an average per patient cost of \$20,029 (30 day cost: \$305). Moderate patients were followed an average of 35.0 months and had an average per patient cost of \$17,747 (30 day cost: \$592). **CONCLUSIONS:** Preliminary results from a major IPF treatment centre indicate substantial HCRU associated with IPF management. The authors plan to complete data extraction at the centre in order to determine HCRU and cost results for the full cohort.

PRS34

CLINICAL AND ECONOMIC BURDEN OF ASTHMA AND CHRONIC OBSTRUCTIVE PULMONARY DISEASE (COPD) IN POLAND: ESTIMATED IMPACT OF POOR INHALATION TECHNIQUE WITH INHALED CORTICOSTEROID AND LONG-ACTING BETA AGONIST FIXED-DOSE COMBINATIONS

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OBJECTIVES: Fixed-dose combinations (FDCs) of inhaled corticosteroids (ICS) and long-acting beta agonists (LABA) are recommended in moderate to severe persistent asthma and chronic obstructive pulmonary disease (COPD). The aim of the analysis was to evaluate the clinical and economic burden of asthma and COPD in Poland, and assess the impact of poor inhalation technique with ICS + LABA FDCs - which is common with inhalers - reimbursed in Poland on costs and resource use. **METHODS:** The eligible patient population was estimated based on Polish asthma and COPD prevalence rates, with the proportion of patients receiving FDCs based on available National Health Fund (NHF) data. Costs of inhalers, scheduled and unscheduled health care events were taken from publicly available sources. The analysis was conducted in one-year horizon from the payer and patient perspective (direct costs) and societal perspective (indirect costs). Frequency of poor inhalation technique (occurrence of critical inhaler errors) and the associated increased risk of unscheduled health care events were estimated based on a large (N = 1,664), cross-sectional, observational study, performed in Italy in 2008. **RESULTS:** In Poland 207,801 adults with asthma and COPD receive an ICS + LABA FDCs annually, of which 56,937 are estimated to have poor inhalation technique. Total direct costs were estimated to be 378 million PLN (91.1 million EUR) and productivity loss costs - 20.4 million PLN (4.9 million EUR). **CONCLUSIONS:** The clinical and economic burden of asthma and COPD is considerable in Poland and poor inhalation technique is a substantial contributor to costs of unscheduled healthcare events. Novel inhalers with easier inhalation technique may offer clinical and economic benefits in the management of asthma and COPD.

PRS35

NEW COPD MEDICINAL PRODUCTS ENTRANCE ANALYSIS AND THEIR INFLUENCE ON THE NUMBER AND COST OF HOSPITALIZATIONS DUE TO COPD EXACERBATIONS

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OBJECTIVES: To perform an analysis of the changes in the number and cost of hospitalizations of COPD patients after the introduction of the new inhalation medicines into the Positive drug list (PDL). **METHODS:** It is retrospective, real life observational study on the hospitalizations of COPD patients due to exacerbations and the inclusion of new medicinal products for the treatment of COPD in PDL for a 6-year period (2009-2014). Data for the number of hospitalizations due to COPD exacerbations, their cost, and the number of COPD patients with valid health insurance status was collected from National Health Insurance Fund (NHIF). Newly entered medicinal products for COPD were extracted from the PDL. Macro-costing approach was applied to evaluate the total medical costs on hospitalizations. Statistical processing was through Spearman and Pearson correlation, and Freedman test. **RESULTS:** Before 2009 COPD pharmacotherapy was partially reimbursed by NHIF. ICS/LABA were included with 100% reimbursement and LAMA with 75% in PDL in 2010. In 2013 and 2014 in PDL were included glycopyrronium, aclidinium and indacaterol/glycopyrronium with 75% reimbursement and two generic ICS/LABA with 100% reimbursement. A statistically significant decrease in the hospitalizations due to COPD exacerbations was observed - from 28% in 2009 to 19% in 2014 ($p<0.0001$). On the other hand, there is an increase in the total cost of hospitalizations mostly due to the increase in the cost of hospital services. Statistically significant correlation with linear nature exists also between the number of hospitalizations and the number of health-insured patients with COPD. Increase in the number of health insured led to the increase in the hospitalizations