PRSB24

OBSERVATIONAL STUDY OF THE OUTCOMES AND COSTS OF INITIATING INHALED LONG-ACTING BRONCHODILATORS VERSUS INHALED SHORT-ACTING BRONCHODILATORS THERAPIES IN NEWLY-DIAGNOSED COPD PATIENTS

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OBJECTIVES: The aim of this study was to examine the association between inhaled bronchodilators and the utilization of healthcare services in newly-diagnosed COPD patients using a nationwide health insurance administrative database.

METHODS: The Taiwan National Health Insurance Research Database was used. Participants ≥40 years-old who had not been diagnosed with COPD between 2006 and 2007 but were diagnosed with COPD in 2008 were included. Patients were categorized into three groups depending on their medications use, an inhaled long-acting bronchodilator (ILA-B), an inhaled short-acting bronchodilator (ISAB) and an oral respiratory medication (OTR) group. The ILA-B group used long-acting bronchodilators and ILA+B group used both long-acting and short-acting bronchodilators.

RESULTS: A total of 13,181 newly-diagnosed COPD patients with a mean age of 65.2 years, among which 8,055 (60.7%) were men, were included in the study. ED visits and hospitalization were associated with ISA-B cohort, male gender, older age, copayment exemptions, tertiary healthcare institutions visits, non-pulmonary medications use, and inhaler use. Multivariable analysis showed that the ISA-B cohort was associated with more ED visits, recurrent ED visits, hospitalizations and rehospitalizations (adj. ORs [95% confidence intervals] = 5.06 [3.46, 7.41], 3.98 [2.08, 7.58], 1.59 [1.18, 2.21], and 1.42 [1.19, 2.18], respectively) compared with the ILA-B cohort. The ILA-B cohort incurred significantly higher adjusted pharmacy costs per patient per year by $165 (95% CI: $97, $235), P<0.001 vs the ISA-B cohort, whereas adjusted medical costs per patient per year were significantly lower in the ISA-B cohort vs the ILA-B cohort. A total of 4,519 patients (45.2%) were included in the study. The total yearly adjusted costs per patient, as a result, did not differ significantly between this two cohorts.

CONCLUSIONS: Initiation of inhaled long-acting bronchodilator treatment was associated with better clinical and economic outcomes compared to initiation of short-acting bronchodilator in newly-diagnosed COPD patients in real-life clinical practice.

PRSB25

COST-EFFECTIVENESS OF TIOTRIPOM VS GLYCOPHYRONIUM IN MODERATE TO VERY SEVERE COPD IN CANADA, SWEDEN AND THE UK

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OBJECTIVES: To compare the cost-effectiveness of tiotropium (ti) with glycopyrronium (gly) for the treatment of moderate to very severe COPD. Clinical evidence from the SPARK trial suggests that tiotropium is superior to glycopyrronium (gly) in preventing severe exacerbations. This study assessed the incremental cost-effectiveness of tiotropium versus glycopyrronium in Canada, Sweden and the UK using a Markov model.

METHODS: A Markov model was populated with efficacy data from the UPLIFT and SPARK trials and cost and epidemiological data relevant for each country. Treatment efficacy was modelled as improvement in lung function, quality of life and as a lowering of the risk of exacerbations. Incremental cost-effectiveness ratios were calculated as the difference in mean costs divided by the difference in mean QALYs.

RESULTS: The base case analysis showed that patients treated with ti gained QALYs: CAN: 0.23, SWE: 0.24, UK: 0.25. QALY’s gained compared to gly at a hypothetical cost of $955 (S322, SEK 1,530, £ 1,028) per patient per year. The results were mainly driven by the relative risk of severe exacerbations found in SPARK: RR = 1.43 CI 1.05-1.97, P = 0.05. The results from this study show that ti adds benefits and savings in terms of QALY’s and costs compared to gly monotherapy in high-risk
patients. As the results were mainly driven by the lower rates of severe exacerbations in the tiotropium arm, this highlights the importance of exacerbations when assessing cost-effectiveness in moderate to very severe COPD. Overall, a broader range of evidence parameters should be considered in economic modelling of COPD.

**PRS26**

**COST-EFFECTIVENESS OF REFRACTORY ASThma TREATMENT STRATEGIES: A DECISION-Tree Analysis**

**Background:** Robert J. Wright & Swati S.*

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**OBJECTIVES:** Patients with severe refractory asthma experience persistent symptoms despite adhering to guideline-based therapies, and they utilize a disproportionate share of healthcare resources. Several new treatments are available that have been shown to improve symptoms and quality of life in patients with refractory asthma. This study was designed to examine the cost-effectiveness of primary medical treatment strategies for severe refractory asthma, including biologic therapies and follow-on bronchial thermoplasty.

**METHODS:** A decision tree analytic model to investigate the comparative effect of two biologic therapies and follow-on bronchial thermoplasty on asthma exacerbation-related costs and utilities. Endpoints of interest were ER visits, hospitalizations, death, and direct healthcare costs. Base-case inputs were taken from prior literature or assumed as necessary. We used a U.S. healthcare perspective, a hypothetical cohort of 10,000 adult refractory asthma patients, an annual cycle, and 10-year time horizon to construct our model.

**RESULTS:** Among patients who respond to biologic treatment, the addition of bronchial thermoplasty was not cost-effective. Mepolizumab without bronchial thermoplasty was the most cost-effective option for biologics responders, with a 10-year per-patient cost of $116,776 and 5.46 QALYs gained (ICER $21,388). Among patients who do not respond to biologic treatment, bronchial thermoplasty is a cost effective treatment option ($93,014/QALY). Sensitivity analysis showed the highest benefit of bronchial thermoplasty to be cost-effective to add bronchial thermoplasty to biologic responders’ therapy; however, in biologic non-responders, bronchial thermoplasty remains a cost-effective add-on treatment option. Future studies should incorporate long-term efficacy inputs of bronchial thermoplasty and real-world mepolizumab cost data to address assumptions necessary due to limited data currently availability for these newer therapies.

**PRS27**

**COST-EFFECTIVENESS ANALYSIS OF SMOKING CESSATION INTERVENTIONS IN JAPAN USING THE DISCRETE EVENT SIMULATION MODEL**

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**BACKGROUNDs:** Smoking cessation medications have been shown to yield higher success rates and sustained abstinence when compared to unassisted quit attempts. Although unassisted smoking cessation is still common in Japan, various treatments, including nicotine replacement therapy (NRT) and varenicline, can be covered by the national health insurance system. For this study, we estimated the health and economic consequences of smoking cessation in Japan by using pharmacotherapy to support smoking cessation with unassisted attempts and the current mix of strategies used.**

**METHODS:** A discrete event simulation model was developed which included quit attempts and relapses. The model was designed to determine smoking-related diseases was estimated based on the duration of smoking abstinence. Data collected from a survey conducted in Japan was used to determine the quit intentions selected by smokers initiating a quit attempt, along with the time between multiple quit attempts. The analyses were conducted from healthcare payers’ perspective, with incremental analyses in which productivity losses due to smoking-related diseases were estimated.**

**RESULTS:** Total costs for 100 patients were estimated to be $8,697,622 (NRT or varenicline) to support quit attempts proved to be dominant when compared with unassisted attempts or the current mix of strategies (most are unassisted). If varenicline is always chosen as the first choice for a quit attempt, it would save JPY 74,716,100 and prolong 0.08 QALY per smoker over a lifetime horizon, compared to current mix of strategies used.

**CONCLUSIONS:** This study applied a cross-sectional design using the 2008-2012 Medical Expenditure Panel Survey (MEPS). Asthma patients (18-64 years old) were identified by self-reported diagnosis, Clinical Classification Codes of 128, or ICD-9-CM code of 493. To investigate the impact of being overweight, patients with normal weight (18.5 ≤ BMI < 25), overweight (25 ≤ BMI < 30), and obese (BMI ≥ 30). Productivity losses, which were measured based on missed work days due to illness or injury for each group were estimated using a two-part model to adjust for patients with zero costs. To estimate the productivity loss costs attributable to being overweight or obese, each group of costs was estimated by assuming everybody was normal, everybody was overweight or obese, and everybody was normal, and the mean difference between the two estimated costs was calculated. All costs were converted to 2013 US dollars using the Consumer Price Index (CPI). Results: Among a total of 5,931 working adults with asthma, prevalence of normal-weight was 28.9%, overweight 31.4%, and obese 39.7%. Annual average productivity loss costs for normal, overweight and obesity asthma patients were $360 (95%CCI:297–423), $461 (95%CCI:374–548), and $753 (95%CCI:620–886) per patient respectively. Among patients with asthma who had loss of productivity costs, those with obesity had 1.3 times greater productivity loss costs than normal-weight patients. Thus, the productivity loss costs attributable to being overweight or obesity in working asthma patients were estimated at $459/CC (IQR $24–252) or $903/CC (IQR $184–1,912).**

**PR28**

**OBJECTIVES:** To assess the impact of CSU on patients and comparisons with other therapeutic diseases and therapies. This study evaluated economic burden associated with CSU relative to psoriasis (PsO) among the adults in 5 European (5EU) countries and the United States (US). METHODS: Data from diagnosed chronic hives (used as proxy for CSU) among the adults in 5 EU and US were used for this retrospective, cross-sectional analysis. Outcome measures included the Work Productivity and Activity Impairment questionnaire (WPAI) and self-reported healthcare utilization in 6 months. Incremental analysis (t-tests for continuous and chi-square for categorical variables) was used to compare patients with CSU vs. PsO. Results: Study included 1,516 patients with CSU (769 EU, 747 US) and 12,964 patients with PsO (7,857 EU, 5,107 US). In EU, employed CSU patients reported higher absenteeism (10.5% vs. 6.8%), presenteeism (27.6% vs. 20.5%), overall work impairment (32.6% vs. 24.6%) and activity impairment (39.5% vs. 30.5%) compared to PsO patients. Similarly, US CSU patients reported higher WPAI parameters (8.4% vs. 4.6%), (25.6% vs. 19.1%), (28.3% vs. 21.4%) and (38.9% vs. 31.2%), respectively (p<0.01 for all). CSU patients had more hospitalizations (0.43 vs. 0.17), and more visits to ER (0.75 vs. 0.25), physician (3.08 vs. 2.52) and allergist (0.21 vs. 0.06) compared to PsO patients (p<0.01 for all) in EU. Similarly, US CSU patients showed more hospitalizations (0.26 vs. 0.15), ER visits (0.42 vs. 0.25), physician (1.16 vs. 1.24) and allergist (0.25 vs. 0.09) visits than PsO patients (p<0.05 for all).**

**CONCLUSIONS:** This analysis of patient reported data show that CSU has a similar or even higher economic burden than PsO patients in both EU and US patient population.

**PRS31**