

## PRS33

## IMPACT OF ROFLUMILAST ON HEALTH CARE RESOURCE UTILIZATION AND COSTS IN PATIENTS WITH CHRONIC OBSTRUCTIVE PULMONARY DISEASE IN REAL-WORLD SETTINGS

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**OBJECTIVES:** To compare real-world health care resource utilization (HCRU) and health care costs among patients initiated roflumilast compared to those initiated other chronic obstructive pulmonary disease (COPD) medications. **METHODS:** A retrospective database analysis was performed using Lifelink™ Health Plan Claims Database. We included patients with a diagnosis of COPD who initiated roflumilast (roflumilast group) or any other  $\geq 3$  COPD maintenance drugs (non-roflumilast group) between May 1, 2011 and December 31, 2012. Patients must have been enrolled for 12 months prior to (baseline period) and 3 months after (follow-up period) the initiation date, be  $\geq 40$  years old, not corticosteroid-dependent, and without asthma diagnosis at baseline. Office and emergency department (ED) visits, hospitalizations, and total health care costs were compared between study groups using nonparametric Wilcoxon rank-sum test. Difference-in-difference (DID) models were used to compare the change from baseline in hospitalizations and costs between groups while adjusting for baseline differences. **RESULTS:** During the baseline period, patients in the roflumilast group (N=710) had significantly more office visits, ED visits, hospitalizations, and greater total costs than patients in the non-roflumilast group (N=13,501). The changes from baseline were: monthly frequency of office visits (0.081 in roflumilast vs 0.122 in non-roflumilast group;  $p=0.01$ ), ED visits (0.009 vs 0.007;  $p=0.80$ ), hospital admissions (0.002 vs 0.005;  $p=0.02$ ), and monthly costs (\$432 vs \$522;  $p=0.34$ ). After controlling for key covariates using DID models, roflumilast was associated with numerically lower hospital admissions ( $\beta=-0.003$ ,  $p=0.57$ ) and total costs ( $\beta=-116$ ,  $p=0.62$ ). **CONCLUSIONS:** Smaller increase in office visits, hospitalizations and total costs during follow-up from baseline was observed in roflumilast vs non-roflumilast group. A longer follow-up time may be needed to assess potential improvement in these economic outcomes.

## PRS34

## DIRECT COST INVOLVED IN THE TREATMENT OF MOST COMMONLY OCCURRING ILLNESS IN CHILDREN AT A PEDIATRIC OUTPATIENT CLINIC IN NORTH INDIA

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**OBJECTIVES:** The cost of medicine is an important factor in any disease treatment. Strengthening health systems to provide such interventions at affordable cost to all children will save many lives. The present study was carried out to determine the total direct cost associated with the treatment of most commonly occurring illness in children. **METHODS:** The study was carried out prospectively at a pediatric outpatient clinic over a period of 1 year in children (<18 years of age). The data in the prescriptions of patients were captured at the time of consultation. The cost of treatment were calculated for three most commonly occurring diseases upper respiratory tract infection (URTI), acute gastroenteritis (AGE) and reactive airways disease (RAD). **RESULTS:** A total of 2902 patients were included in the study. URTI (1078, of total patients) were found to be the most commonly occurring disease in children followed by AGE and RAD (468 and 332 patients, respectively). The average number of drug utilized for the treatment of RAD, AGE and URTI were found to be (3.3±0.4, 3.3±0.2 and 3.4±0.4, respectively). The average cost of treatment for RAD was found to be INR416±19, followed by INR184±3 and INR120±2 for AGE and URTI, respectively (1USD≈approx INR62). Fifty seven percent of the drugs in AGE were prescribed from the National List of Essential Medicine (NLEM), while drugs prescribed from NLEM in RAD and URTI were (49% and 38%, respectively). In URTI maximum cost were spent on the use of Cough and Cold combinations (42%, of total cost spent on all drugs). While in RAD and AGE maximum cost were spent on the use of Steroids and Probiotics (33% and 43%, respectively). **CONCLUSIONS:** URTI were found to be the most commonly occurring illness in children. RAD treatment was found to be the most costly treatment among all. These findings help in building evidence regarding the cost of treatment for different childhood illness.

## PRS35

## COST-EFFECTIVENESS ANALYSIS OF GLYCOPIRRONIUM VERSUS TIOTROPIUM AND FIXED-DOSE COMBINATIONS (FORMOTEROL/BUDESONIDE AND SALMETEROL/FLUTICASONE) FOR COPD IN THE COLOMBIAN HEALTH CARE SYSTEM

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**OBJECTIVES:** To evaluate the cost-effectiveness of Glycopirronium (once daily) compared to tiotropium bromide and fixed dose combinations of Formoterol/budesonide and Salmeterol/fluticasone for the treatment of COPD from the Colombian Health Care system perspective. **METHODS:** A Markov model was designed considering health's state according to GOLD 2010 classification for COPD into mild, moderate, severe and very severe. The absorbing state was death. The first four stages include the possibility of presenting or not a severe exacerbation. Efficacy, based on the initial improvement on FEV<sub>1</sub>, and outcomes measures were estimated by meta-analysis of published studies. Cycles were 3-month and the time horizon was 5 years. Discount rate for costs and benefits was 5% per year. Effectivity was evaluated by QALYs according to COPD severity. Health costs were determined from medical records from a third level university Hospital, from the official Colombian medication database (SISMED) and from estimations based on the GOLD guide recommendations for care. A probabilistic sensitivity analysis (PSA) was performed using the Montecarlo method. **RESULTS:** An analysis of LYG and QALY showed that Glycopirronium was dominant compared to tiotropium and formoterol/budesonide and was inconclusive for salmeterol/fluticasone.

Mean savings per patient per year compared to formoterol/budesonide, Salmeterol/Fluticasone and Tiotropium were of COP 1,593,128.1 (USD\$822.9), COP 2,366,779.1 (USD 1,222.6) and COP 8,990.6 (USD\$4.64). The probabilistic sensitivity analysis presented Glycopirronium as a dominant alternative compared to tiotropium and formoterol/budesonide in more than 90% of the cases and against salmeterol/fluticasone the results were inconclusive. **CONCLUSIONS:** Glycopirronium is cost-effective when compared to other long-acting bronchodilators in the Colombian Health Care System.

## PRS36

## THE COST EFFECTIVENESS ANALYSIS OF INDACATEROL VERSUS TIOTROPIUM IN A CHINESE MEDICAL COST SETTING

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**OBJECTIVES:** This study evaluated the cost-effectiveness of Indacaterol (150 ug) versus Tiotropium applied to the patients with Chronic obstructive pulmonary disease (COPD) in Guangzhou, China. **METHODS:** Markov model was developed to simulate the progress of COPD for 3 years and whole life respectively. The transfer probability in the Markov model and the utility of different Markov status were from the Indacaterol's clinical trial conducted in the US. Medical cost data of Chinese COPD patients are extracted from the Guangzhou health insure database. During the simulation, both the costs and utilities are annually depreciated at the rate of 3.5%. **RESULTS:** Within 3 years, the Indacaterol group cost 20,089 CNY per capita, and gained 2.151 QALY or 2.736 LY per capita; the Tiotropium group cost 23,616 CNY per capita and gained 2.143 QALY or 2.730 LY per capita. Thus, compared with the Tiotropium group, the Indacaterol group saved 3527 CNY and gained more 0.008 QALY or 0.006 LY for every patient within 3 years. In the lifetime simulation, Indacaterol group cost 66150 CNY and gained 8.083 QALY or 10.327 LY per capita, while the Tiotropium group cost 74915 CNY and gained 8.000 QALY or 10.230 LY per capita. Thus, compared with the Tiotropium group, the Indacaterol group saved 8766 CNY and gained more 0.083 QALY or 0.097 LY per capita in the lifetime. **CONCLUSIONS:** According to the medical costs of COPD patients in Guangzhou, China, the cost-effectiveness of Indacaterol is dominant over that of Tiotropium.

## PRS37

## ECONOMIC EVALUATION OF BUDESONIDE/FORMOTEROL AS MAINTENANCE AND RELIEVER THERAPY IN PATIENTS WITH MODERATE OR SEVERE PERSISTENT ASTHMA

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**BACKGROUND:** Asthma is a global health problem and currently it is estimated that 300 million people are affected. The aim of asthma treatment is to achieve and maintain clinical control. **OBJECTIVES:** Conduct a cost-effectiveness analysis of budesonide/formoterol as maintenance and reliever therapy for treatment of moderate or severe persistent bronchial asthma. **METHODS:** A cost-effectiveness analysis was performed using a decision tree that compares two treatment alternatives: budesonide/formoterol (maintenance and reliever) vs. salmeterol/fluticasone (maintenance) plus salbutamol (reliever). Efficacy data was obtained from scientific literature and direct medical costs was obtained from institutional sources. A deterministic and probabilistic sensibility analysis was performed to determine the robustness of the model. Two measures of effectiveness were used: Life Years Gained without hospitalization (LYGh) and Life Years Gained without severe exacerbation (LYGse). **RESULTS:** Budesonide/formoterol increases the time free from hospitalization (49.92 vs. 48.88 weeks) with an ICER (Incremental Cost-Effectiveness Ratio) of \$7,541.51 and the free-time of severe exacerbations (41.08 vs. 37.96 weeks) with an ICER of \$3,322.86; both below the willingness to pay set in Mexico (1 GDP per capita: \$10,047.00). The sensibility analysis showed consistency in results: budesonide/formoterol has a probability of 60% of being cost-effective in case of LYGh and 90% with LYGse efficacy measure vs. salmeterol/fluticasone under threshold ratio. **CONCLUSIONS:** The use of budesonide/formoterol as maintenance and reliever therapy is a cost-effective treatment in the Mexican Health system compared to salmeterol/fluticasone plus salbutamol reducing the time without a severe exacerbation and time in hospitalization.

## PRS38

## EVALUATION ANALYSIS COMPARING TIOTROPIUM WITH SALMETEROL OR IPRATROPIUM IN CHRONIC OBSTRUCTIVE PULMONARY DISEASE IN TAIWAN

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**OBJECTIVES:** This study presents a cost effectiveness of tiotropium compared to salmeterol or ipratropium for patients with chronic obstructive pulmonary disease (COPD) in Taiwan. **METHODS:** A medical reimbursement claims databases from Taiwan's National Health Insurance were used. National Health Insurance enrollees who had an index event of at least one prescription claim (index medication) for either tiotropium, salmeterol or ipratropium during the study period (January 1, 2002-December 31, 2006) and met all eligibility criteria were classified into one of three cohorts according to their medication use. Utilization and cost data of the 1-year post-index period was extracted from these 3 cohorts and used as a cost parameter. A published COPD probabilistic Markov model was adapted to compare the cost effectiveness of tiotropium with salmeterol or ipratropium. **RESULTS:** The study population included 3646 patients (n=1559 tiotropium cohort, n=169 salmeterol, n=1918 ipratropium). The estimated mean annual cost per patient on tiotropium was NT49581, on salmeterol was NT45039, and on ipratropium was NT36645. Tiotropium patients have better quality-adjusted life years across all comparisons. The probability of tiotropium being cost effective ranged from 20% to 30% at a willingness-to-pay of NT0 per QALY and reached at least a 70% at a willingness-to-pay of NT600000 per QALY across comparisons. **CONCLUSIONS:** Tiotropium is more expensive than salmeterol or ipratropium in Taiwan's National Health Insurance. Tiotropium may