OBJECTIVES: To assess the cost-effectiveness of three treatments (tiotropium, salmeterol, and no treatment) in patients with moderate chronic obstructive pulmonary disease (COPD).

METHODS: A Markov model with a time horizon of one year was developed to evaluate the cost-effectiveness of three treatments including i) tiotropium, ii) salmeterol, and iii) no treatment, in patients with moderate COPD. A hypothetical cohort of 100,000 subjects with moderate COPD with the following characteristics were included in the model: mean age of 65 years, smoking history of 50 pack years, and disease duration of 9.5 years. The efficacy and withdrawal data was taken from published randomized clinical trials of the treatments conducted in patients with moderate COPD. The effectiveness measure was exacerbations avoided per patient per year. Incremental cost-effectiveness ratio (ICER) was calculated as additional cost per patient to prevent one exacerbation, compared with the next most expensive option. A payer’s perspective was used and only direct costs were included in the study. Sensitivity analyses were conducted to test the robustness of the baseline estimates and the study assumptions. RESULTS: The mean annual costs for no treatment, salmeterol, and tiotropium groups were $392, $1268.7 and $1408.6, respectively. The ICER of tiotropium compared with no treatment group was $1830.46/exacerbation avoided, while the ICER of salmeterol compared with no treatment group was $2454.35/exacerbation avoided. Sensitivity analysis results for study variables were stable over a wide range; however the results were most sensitive to the compliance rates of the drugs. CONCLUSION: In patients with moderate COPD, tiotropium was more cost-effective than salmeterol and no treatment strategy. The study helps demonstrate the cost-effectiveness of new treatment interventions in COPD, which would assist private payers in evaluating the role of costly, yet effective therapies.

PRS7

COMPARISON OF EVENTS (HOSPITALIZATIONS AND EMERGENCY DEPARTMENT VISITS) AND COSTS FOR MEDICAID PATIENTS WITH CHRONIC OBSTRUCTIVE PULMONARY DISEASE (COPD) BY INITIAL MEDICATION REGIMEN

Rascati KL1, Akazawa M2, Johnsrud M2, Stanford RH3, Blanchette CM4

1The University of Texas at Austin, Austin, TX, USA; 2University of North Carolina at Chapel Hill, Chapel Hill, NC, USA; 3GlaxoSmithKline, Research Triangle Park, NC, USA

OBJECTIVES: Limited information is available about the relative benefits of various COPD medication treatments on the outcomes and treatment costs in a Medicaid population. The objective was to compare the effects of initial medication regimens on COPD-related and all-cause events (hospitalizations and/or emergency department visits) and COPD-related and all-cause costs for patients with COPD. METHODS: A historical cohort of Texas Medicaid patients aged 40 to 65 years, with COPD-related medical costs (ICD-9-CM = 491, 492, 496), 24 months of continuous enrollment (12 months pre and post), and at least one prescription claim (index) for ipratropium (IPR), inhaled corticosteroids (ICS), salmeterol (SAL) or fluticasone propionate/salmeterol (FSC) between September 1, 2000, and December 31, 2003 were assessed. For analysis of events, Cox proportional hazards regression analyses were conducted controlling for baseline factors and pre-index events. For analyses of costs, a two-part model with logistic regression and generalized linear model (GLM) were used to adjust for baseline characteristics and pre-index utilization and costs. RESULTS: A total of 6793 patients were identified; IPR (n = 4213), ICS (n = 968), SAL (n = 401) and FSC (n = 1211). EVENTS—Compared with IPR, only FSC was associated with a significantly lower risk of any COPD-related event (HR 0.733 [95%CI 0.650–0.826]), and any all-cause events (HR 0.906 [95%CI 0.844–0.972]). COSTS—Compared to IPR, total COPD-related costs were similar in FSC and ICS, and reduced by $108 (p < 0.05) in the SAL cohort. However, for total all-cause costs, significant reductions were observed for FSC ($792, P < 0.05) and SAL ($1226, p < 0.05) but not the ICS cohort. CONCLUSION: Compared to the IPR cohort, the FSC cohort was 27% less likely to have a COPD-related event, 10% less likely to have any all-cause event, had similar total COPD-related costs, and had reduced all-cause treatment costs in COPD patients, indicating that FSC is a cost-effective initial maintenance therapy compared to IPR.

PRS8

ASSESSING TREATMENT EFFECTS OF INHALED CORTICOSTEROID ON MEDICAL COSTS AMONG COPD PATIENTS: LONGITUDINAL ANALYSIS OF MANAGED CARE CLAIMS

Akazawa M, Stearns S, Biddle AK

University of North Carolina at Chapel Hill, Chapel Hill, NC, USA

OBJECTIVES: A longitudinal analysis of managed care claims data was conducted to estimate the treatment effects of inhaled corticosteroids (ICS) on medical costs. METHODS: Patients with Chronic Obstructive Pulmonary Disease (COPD) (ICD-9-CM: 491, 492 or 496), ages 40 years or older, who had 15 months continuous eligibility, and received both ICS and regular inhaled bronchodilators (i.e., anticholinergics or long-acting beta2-agonists) were selected from the claims database. Individual-level data on exposure status and costs were summarized for monthly intervals from up to one-year before the initiation of bronchodilators (“index date”) through a two-year follow-up period. A fixed-effects approach that accounted for potential omitted variable biases was used to estimate incremental effects of initiating ICS on medical costs. Interaction teams were included to evaluate the timing of ICS treatment as well as impact of patient age. RESULTS: A total of 10,271 COPD patients were used in the analysis. After adjusting for time-varying factors including use of rescue medications and having conditions of asthma or congestive heart failure, ICS treatment was associated with monthly cost reduction of $43 in COPD-related medical services and $55 in all-cause medical services. Moreover, a one-month delay of ICS initiation was associated with an additional $2 to $3 per month in medical costs. The largest cost reduction was observed among older COPD patients. CONCLUSION: The findings support evidence that initiation of ICS treatment earlier than the current guideline recommended strategy would be beneficial to prevent exacerbation risks and to reduce overall medical costs from managed care perspective.

PRS9

ESTIMATED COST SAVINGS ASSOCIATED WITH THE USE OF A NEW TASTE-MASKED ORAL CLARITHROMYCIN PREPARATION FOR THE TREATMENT OF RESPIRATORY TRACT INFECTIONS IN CHILDREN IN GERMANY

Fricke FU1, Gabriel A2, Lungershausen J1, Poulsen Nautrup B3

1IMV Health Nuremberg, Germany; 2Gruenenthal GmbH, Aachen, Germany

OBJECTIVES: To evaluate the economic value of a new taste-masked oral clarithromycin preparation (clarithromycin SpiTechnology) by estimating the amount of cost savings due to its improved compliance compared to clarithromycin suspension in children with respiratory tract infections (RTI) in Germany.
METHODS: Treatment failure (TF) in children suffering from RTI was derived from the German IMS Disease Analyzer–mediplus database totalling 20% of all treatments with clarithromycin suspension. TF is due to non-sensitivity to clarithromycin or incomplete intake of medication (non-compliance). The TF rate due to non-compliance on the clarithromycin suspension (13.5%) was calculated from the overall TF rate (20%) minus the average TF rate due to non-sensitivity (6.5%). The TF rate due to non-compliance on clarithromycin SipTechnology was 1.75% as estimated from clinical trial. Resource utilisation data for treatment of RTI and TF were obtained from a Delphi panel of paediatricians. The analysis was conducted from the perspective of the German Statutory Health Insurance (SHI), including direct costs for physician visits, laboratory values, drugs and hospitalizations. Cost data were derived from published sources for the year 2006. One-way sensitivity analyses were performed. RESULTS: The average costs of TF totalled €118.05 per case. With an RTI incidence of about 426,000 cases among German children aged 2–12 years and a reduction of TF from 20% to 8.25% (remaining TF due to non-sensitivity plus non-compliance on clarithromycin SipTechnology) for clarithromycin SipTechnology compared to clarithromycin suspension, the annual cost savings for the SHI amount to about €5.9 million. Sensitivity analyses confirm the robustness of the results. CONCLUSIONS: Due to its improved compliance and consequently decreased TF rates, the treatment with clarithromycin SipTechnology is cost-saving for the German health care system compared to clarithromycin suspension.

PRSI0
CHRONIC OBSTRUCTIVE PULMONARY DISEASE (COPD): HOSPITALIZATIONS AND COSTS BY SEVERITY OF ILLNESS
O’Brien JA, Duran PA, Caro JJ
Caro Research Institute, Concord, MA, USA
OBJECTIVES: To examine use and cost of inpatient care by severity of COPD during one year. METHODS: Using 2004–2005 Massachusetts hospital discharge data, a cohort of patients with COPD (ICD-9 principal diagnosis codes: 491.2X, 492.X, 493.2, 496) assigned to v15APR-DRG 140 (COPD) was identified. A COPD inpatient stay profile was established starting with the first hospitalization (index stay) at any Massachusetts hospital in 2004 and included all subsequent inpatient stays for COPD within twelve months. Cases were examined by APR-DRG severity (mild, moderate, major, extreme). Charges (accommodations, ancillary services) adjusted by a 0.652 cost-to-charge ratio, medical inflation and geographic factors are reported as 2006 US$ costs. RESULTS: Of the 11,279 patients 60% were female, mean age was 69 years. More than half (54%) were classified as moderate severity; 22% as major, 21% as minor and 4% as extreme. For all COPD cases, the mean LOS was 4.7 days with a mean cost of $6671 per hospital stay. On average, LOS and cost increased by severity level from 3.5 days at $4745 for minor cases to 9 days at $13,997 for extreme cases. The inpatient case fatality rate (CFR) during the index stay ranged from <1% (minor severity) to 18% (extreme severity). During the subsequent year, 5044 (46% of index survivors) had a COPD-related readmission. The readmission rate was 39% for minor cases (mean: 2.2; range: 1–15), 39% for moderate cases (mean: 2.1; range: 1–18), 38% for major cases (mean: 2.1; range: 1–12) and 20% for extreme cases (mean 2.3; range: 1–10). CONCLUSION: Almost half of patients receiving inpatient management for COPD will require multiple hospital admissions within a one year period. Severity of illness impacts duration and cost of hospital stay, inpatient CFR and readmission rate.

RESPIRATORY DISEASES—Health Care Use & Policy Studies

PRSI1
PERCEPTIONS ABOUT BEHIND-THE-COUNTER AVAILABILITY OF PSEUDOEPHEDRINE
Shi CW, Ganiats T
UC San Diego, La Jolla, CA, USA
OBJECTIVES: Recent federal legislations has mandated pharmacies to move pseudoephedrine (PSE) products from over-the-counter to behind-the-counter. We undertook a qualitative study that explored the public’s perceptions about this new policy. METHODS: Ninety participants comprising of physicians, patients, and pharmacists responded to questions about perceived advantages and disadvantages of this policy, its influence on the treatment for a common cold, barriers to implementation, and personal impacts. Qualitative content analysis was performed through the immersion and crystallization process to identify emerging themes and salient topics. RESULTS: Advantages included more opportunities for pharmacist counseling, decreased access to pseudoephedrine by minors, less likelihood for misuse to occur, and less shoplifting. Disadvantages included rising prices for other cold remedies, less consumer autonomy, and more pharmacy workload. Implementation barriers included lack of consolidated purchase data between various pharmacies as well as discrepancies between store versus pharmacy hours of operation. Impact on treatment of colds consisted of substitution with other over-the-counter remedies and frequent clinic visits for prescription drugs. CONCLUSION: This exploratory study suggested actions that might improve the desired effect of the pseudoephedrine legislation: 1) establishing a universal system of linking purchase data among various pharmacies; 2) reducing the discrepancy between pharmacies’ and stores’ hours of operation; 3) providing additional support to help the pharmacy staff adapt to their new regulatory rules; 4) enhancing public awareness about the policy; and 5) studying the economic effects of this policy on the costs of cold remedies and health care expenditures.

PRSI2
PROPENSITY OF PRESCRIBING FLUTICASONE/SALMETEROL COMBINATION IN A HIGH RISK MEDICAID POPULATION
Shaya FT1, Du D1, Wang J1, Akazawa M2, Blanchette CM2, Mapel DW4
1University of Maryland School of Pharmacy, Baltimore, MD, USA,
2GSK/University of North Carolina at Chapel Hill, RTP, NC, USA,
3GlaxoSmithKline, Research Triangle Park, NC, USA,
4Lovelace Clinic Foundation, Albuquerque, NM, USA
OBJECTIVES: The burden of chronic obstructive pulmonary disease (COPD) and asthma could be reduced through appropriate medication therapy management. This study examines the relative propensity of Maryland Medicaid managed care organization (MMMCO) patients with COPD and asthma or either alone, to be prescribed fluticasone/salmeterol combination (FSC). METHODS: All medical and prescription claims for MMMCO enrollees with a diagnosis of COPD (ICD-9 codes 491, 492, 496) and/or asthma (ICD-9 codes 493) in the primary, or secondary diagnosis field, were retrieved. Study patients were 40 and older, claiming at least one FSC or other COPD drug with a minimum 30 days supply. The propensity of being prescribed FSC was estimated as a logistic function of patient age, gender, race, general health (as measured by the Charlson Comorbidity Index), and diagnosis of COPD and/or asthma. RESULTS: Out of total 9131 patients, half were African-American, 70% were female and over half were over 50 years.