OBJECTIVES: To determine the effect of enrollment in a prescription drug plan on use of controller medications in patients with persistent asthma. METHODS: The study used a retrospective, cross-sectional research design. The data source utilized was the 2006 Medical Expenditure Panel Survey (MEPS), a nationally representative sample of the non-institutionalized, civilian U.S. population. Analysis was restricted to asthma patients who reported use of more than 3 canisters of rescue inhalers in a three-month period. Controller medication use was self-reported by MEPS respondents. Descriptive statistics were used to describe the sample and the controller medication use. A logistic regression model was used to assess the effect of prescription drug coverage based on the type of prescription drug plan on the controller medication use while adjusting for age, gender, race, ethnicity, income and perceived health status. All analyses were carried out using SAS®. RESULTS: One hundred percent of respondents had prescription drug coverage while 67% reported use of controller medications. In the regression model, controller medication use was found to be similar amongst patients with prescription drug coverage and patients without coverage (68%, 66%, respectively). Patients with prescription drug coverage were less likely to use controller medications than those who did not have coverage, although this effect was not significant (OR = 0.53, CI:0.28-1.01). Patients with Medicare (OR = 0.45, CI:0.61-1.17), Medicaid (OR = 0.54, CI:0.23-1.32) or Veterans Affairs (OR = 12.82, CI:3.21-51.16) prescription coverage were more likely to use controller medications when compared with patients in other types of plans. Both pediatric patients (OR = 5.51, CI:1.27-23.88) and patients with excellent perceived health status (OR = 5.10, CI:0.42-72.76) had a higher likelihood of using controller medications. CONCLUSIONS: Enrollment in a prescription drug plan did not show a significant impact on use of controller medications. However, further work in Medicare, Medicaid, Veterans Affairs prescription plans increased likelihood of controller medication use in this patient cohort.

PRS39 EFFECT OF BIOMASS SMOKE ON CHRONIC OBSTRUCTIVE PULMONARY DISEASE IN RURAL LOCALITIES OF COLOMBIA Alves A1, Paternina A2, Montes J3, De La Hoy P4
1Universidad del Comercio, Bogota, Colombia, 2Universidad Nacional de Colombia, Bogota, D.C., Colombia
OBJECTIVES: The exposure to biomass smoke is a risk factor for Chronic Obstructive Pulmonary Disease —COPD— while using natural gas may be protective. There is little evidence from Latin American studies on the relationship between use of different types of fuels to cook and respiratory diseases. The present report is aimed to assess differences in the prevalence of abnormalities to respiratory function between populations who used biomass fuel to cook against those using clean sources of energy such as natural gas. METHODS: A cross-sectional population based study was designed to evaluate the respiratory function, through spirometry, in subjects cooking with biomass or natural gas. All patients were evaluated by a general physician and a pulmonologist. We compared the prevalence of spirometry abnormalities on those cooking with natural gas versus those cooking with biomass fuel. A multivariable logistic regression was used to adjust differences by potential confounding factors. RESULTS: Overall 203 persons were studied. After adjusting by potential confounders there were a significant increase in the prevalence of severe obstructive pattern (OR 8.50; 95% CI 1.37-52.79) in subjects who cook with biomass compared with natural gas users. Values of Forced Expired Volume in one second (FEV1) and forced vital capacity (FVC) were lower among those cooking with biomass. The differences in prevalence of respiratory morbidities and symptoms were not statistically significant between both groups. CONCLUSIONS: This study suggests that replacing biomass fuel by natural gas may be an important public health intervention in Colombia because it can reduce the prevalence of abnormal patterns of pulmonary function.

PRS40 TRENDS IN ANTIBIOTIC PRESCRIBING RATES IN AMBULATORY CARE SETTINGS FOR ADULTS IN THE UNITED STATES WITH NASOPHARYNGITIS, UPPER RESPIRATORY TRACT INFECTIONS AND BRONCHITIS FROM 2006 TO 2008 Agrawal R1, Shah J2, Chopra P2, Aparasu RR
1University of Houston, Houston, TX, USA
2Texas A&M University, College Station, TX, USA
OBJECTIVES: The 2006 guidelines of the American Academy of Family Physicians recommend to avoid prescribing of antibiotics to patients diagnosed with nasopharyngitis, acute upper respiratory tract infections (ARTI) or acute bronchitis. Inappropriate prescribing of antibiotics to patients can lead to a rise in antibiotic-resistant bacteria and subsequently increase the economic burden. The purpose of this study was to determine the trends in the antibiotic prescribing rates for ARTI diagnosed with nasopharyngitis, acute bronchitis or ARTIs in ambulatory care settings in the United States after the 2006 guidelines. METHODS: This was a retrospective, cross-sectional analysis of the representative national survey of office visits sampled from the National Ambulatory Medical Care Survey for the years 2006 to 2008. Adults ≥18 years of age with a diagnosis of nasopharyngitis, ARTI, or acute bronchitis were identified using International Classification of Diseases, 9th Revision, Clinical Modification (ICD-9-CM) codes. Inappropriate antibiotic prescribing rates for the three respiratory conditions were calculated separately per year and analysis was conducted to determine the utilization patterns by patient and physician characteristics. Logistic regression was carried out to determine the trends in the antibiotic utilization. RESULTS: Analysis of multivar year data showed no statistically significant difference (p = 0.055) in the antibiotic prescribing rates from 2006 to 2008. Approximately, 45.26 million office visits annually resulted in a primary diagnosis of nasopharyngitis, acute URI, or acute bronchitis; of these visits, 1.5%, 44%, and 61%, respectively, resulted in the prescribing of an antibiotic. Overall 47.26% of the study population was prescribed antibiotics. CONCLUSIONS: Antibiotic prescription rate did not change significantly from 2006 to 2008. Antibiotics were prescribed inappropriately in 47% of the adults diagnosed with nasal allergy, ARTI, or acute bronchitis. Concerted efforts are needed to improve antibiotic prescribing practices for these conditions.

PRS41 A REGION-WIDE EVALUATION OF BETA AGONIST USE DURING RESPIRATORY DISEASES IN 2006 IN RURAL LOCALITIES OF COLOMBIA Robinson SB1, Sarocco P2, Karafillidis J3, Walsh P4, Johnson BH5, Ernst FR1, 2Lundbeck, Copenhagen, Denmark, 3Sunovion Pharmaceuticals Inc., Marlborough, MA, USA
OBJECTIVES: Chronic Obstructive Pulmonary Disease (COPD) is a major public health issue and is a leading cause of morbidity and mortality in the United States1. High frequency of exacerbations can lead to a further decline in lung function in patients with COPD,2-4 moderate to severe COPD5. The objective of this study was to gain a better understanding of short-acting and long-acting beta-agonist use (SABA and LABA, respectively) in the inpatient setting and describe beta-agonist effects on total cost and length of stay (LOS). METHODS: Data from the First-Perspective™ Database, a US national representative hospital database, was used to identify the study population, which included adults 40 and older with an inpatient visit having a principal discharge diagnosis code of COPD (ICD-9-CM 491.xx, 492.xx, 496) between January 1, 2006 and March 31, 2010. RESULTS: There were 165,055 individuals with a primary diagnosis code during an inpatient visit. The mean age for SABA only users was 68.9 years and 67.7 years for LABA only users (p < 0.0001). The majority of the patients were female (56.9% SABA only, 56.9% LABA only, p = 0.9988) and white (72.3% SABA only, 66.4% LABA only, p < 0.0001). The unadjusted mean total cost for LABA users was $5,727 compared to $7,084 for SABA users (p < 0.0001). LOS was not different between LABA and SABA users: mean 5.5 and 6.7 (p = 0.4786). Inpatient mortality for both beta-agonist user groups was below two percent (1.50% SABA versus 0.34% LABA, p = 0.0001). CONCLUSIONS: Descriptive analyses indicate there are some differences among individuals with COPD using only SABA versus only LABA use considering inpatient use and potential effects including outcomes such as demographics and concomitant drug use will be performed to further describe this population.

PRS42 COMPARISON OF INPATIENT ANALYSIS IN PATIENTS USING OMALIZUMAB: RESULTS FROM THREE LARGE INSURANCE CLAIMS DATABASES LAFAUille MU1, Duh MS2, Zhang J2, Worts D3, Gu T4, Tang F4, Leef LV5
1GlaxoSmithKline, Durham, NC, USA 2Population Research Education and Prevention Program, New York, NY, USA 3Sunovion Pharmaceuticals Inc., Marlborough, MA, USA 4Groupe d’analyse, Ltée, Montréal, QC, Canada 5A144
OBJECTIVES: The 2006 guidelines of the American Academy of Family Physicians recommends to avoid prescribing of antibiotics to patients diagnosed with nasopharyngitis, acute upper respiratory tract infections (ARTI) or acute bronchitis. Inappropriate prescribing of antibiotics to patients can lead to a rise in antibiotic-resistant bacteria and subsequently increase the economic burden. The purpose of this study was to determine the trends in the antibiotic prescribing rates for ARTI diagnosed with nasopharyngitis, acute bronchitis or ARTIs in ambulatory care settings in the United States after the 2006 guidelines. METHODS: This was a retrospective, cross-sectional analysis of the representative national survey of office visits sampled from the National Ambulatory Medical Care Survey for the years 2006 to 2008. Adults ≥18 years of age with a diagnosis of nasopharyngitis, ARTI, or acute bronchitis were identified using International Classification of Diseases, 9th Revision, Clinical Modification (ICD-9-CM) codes. Inappropriate antibiotic prescribing rates for the three respiratory conditions were calculated separately per year and analysis was conducted to determine the utilization patterns by patient and physician characteristics. Logistic regression was carried out to determine the trends in the antibiotic utilization. RESULTS: Analysis of multivar year data showed no statistically significant difference (p = 0.055) in the antibiotic prescribing rates from 2006 to 2008. Approximately, 45.26 million office visits annually resulted in a primary diagnosis of nasopharyngitis, acute URI, or acute bronchitis; of these visits, 1.5%, 44%, and 61%, respectively, resulted in the prescribing of an antibiotic. Overall 47.26% of the study population was prescribed antibiotics. CONCLUSIONS: Antibiotic prescription rate did not change significantly from 2006 to 2008. Antibiotics were prescribed inappropriately in 47% of the adults diagnosed with nasal allergy, ARTI, or acute bronchitis. Concerted efforts are needed to improve antibiotic prescribing practices for these conditions.

PRS43 REGRESSION VERSUS PROPENSITY MATCHING AS OUTCOME ANALYSIS ADJUSTMENT METHODS: EXAMPLE USING COPD INITIAL THERAPIES Roberts M1, Dalal AR2,4
1LCF Research, Albuquerque, NM, USA 2Groupe d’analyse, Ltée, Montréal, QC, Canada 3Sunovion Pharmaceuticals Inc., Marlborough, MA, USA
OBJECTIVES: Compare retrospective initial maintenance treatment (IMT) analyses results from propensity matched (PM) comparisons to multiple regression (MR) results. METHODS: PM was conducted after adjusting for treatment, demographics and pre-initiation comorbidities (including method of smoking cessation and medication) utilizing the MR and PM methods are two widely used methods in observational comparative outcome studies of pharmaceutical treatments to adjust for baseline differences in non-randomized treatment populations, but research on the extent to which multiple regression analysis is superior to propensity matching is limited. One year post-initiation cost differences and utilization outcomes (odds ratios (OR)/incidence rate ratios (IRR) for emergency department visit (ED), hospitalization, or combination of either ED or hospitalization) for subjects diagnosed with chronic obstructive pulmonary disease (COPD) were reviewed using data (January 2004
through June 2009) for 32,338 patients aged ≥40 years prescribed ipratropium (IPR) (N=10,617) or tiotropium (TIO) (N=9,126) in comparison to fluticasone propionate/ salmeterol combination (FSC) (N=12,595). Patients initiating with IPR (and separately, TIO) were matched to patients initiating with FSC based on propensity to be prescribed IPR (separately, TIO), considering demographics, comorbidities and utilization characteristics assessed during 6 months before first IMT claim. RESULTS: Percentage of each group propensity matched to FSC was 80.2%, IPR and 89.1%, TIO. ORs (95% confidence intervals [CI]) for IPR vs. FSC were: ED - PM 1.86 (1.64-2.10), MR 1.81 (1.68-2.00); Hospitalization – PM 1.47 (1.27-1.70), MR 1.53 (1.35-1.75); ED/Hospitalization PM 1.67 (1.50-1.85), MR 1.72 (1.56-1.90). For TIO versus FSC, ORs (95% CI) were: ED - PM 1.34 (1.14-1.57), MR 1.34 (1.17-1.54); Hospitalization – PM 1.10 (0.94-1.28), MR 1.19 (1.04-1.37); ED/Hospitalization PM 1.21 (1.07, 1.36), MR 1.28 (1.15, 1.42). IRRs and ORs for the relationship between the methods. Compared to FSC, total COPD-related health care costs were higher for IPR (PM & MR: P<0.01) and TIO (PM P<0.05, MR P=0.01). CONCLUSIONS: The MR and PM methods of adjusting for baseline differences between treatment populations produce similar results.

PRS45 THE CHARIOT STUDY: NOVEL DATA COLLECTION, VIEWING AND DYNAMIC REPORTING MECHANISM
Arnold RJ1, Grosser K2, Baldwin R3
1Mount Sinai School of Medicine, New York, NY, USA, 2Arnold Consultancy & Technology LLC, New York, NY, USA, 3Estivalive LLC, Newark, NJ, USA
OBJECTIVES: The significant burden of uncontrolled asthma can be translated into substantial direct and indirect costs to the US health care system. The objectives of the Characterization of Allergic Asthma: A Chart Review In Moderate-to-Severe Disease (CHARIOT) Collaborative are: 1) Asthma Outcomes And Treatment Study (CHARIOT) study were to assess control of patients with moderate-to-severe asthma, examine the natural history of disease, practice patterns and resource utilization in specialty community practices according to recent National Asthma Education and Prevention Program guidelines and develop a novel online data entry system for gathering data and quickly demonstrating results. METHODS: This was a retrospective, multicenter, randomized study of 1009 patient charts in 60 US allergy and pulmonology community practices. Assessment of patient control, the primary endpoint, was performed only by internet-based or paper case report forms (CRFs). Uncontrolled asthma was defined by occurrence of any of the events in the recent 12 months of continuous follow-up: systemic corticosteroid burst, frequent short-acting β2 agonist use; ER visit; asthma exacerbation (hospitalization and/or unscheduled visit); limitations on activities, decline in lung function test (GOLD prediction, or FEV1, daytime dyspnea; doubling of inhaler corticosteroid dose; or addition of another controller medication. RESULTS: A total of 114 sites were invited to participate in CHARIOT, with a 63% response rate leading to site enrollment. Sixty investigator sites participated to completion and after Webl training, only 1 requested paper CRFs but later elected to use electronic forms. Data was successfully collected and analyzed within a 3-month period. Of the 365 male and 464 female patients enrolled (mean 43.2 ± 17 years), 81.9% were deemed to be uncontrolled. CONCLUSIONS: Greater than 80% of asthma patients from specialty practices were uncontrolled with regard to asthma symptoms. The novel internet technology allowed for efficient data collection from multiple sites within a short time frame.

PRS46 MEASUREMENT COMPARABILITY BETWEEN MULTIPLE VERSIONS: RECOMMENDED ASSESSMENT STEPS USING THE LUNG FUNCTION QUESTIONNAIRE AS AN EXAMPLE
Dalal AA1, Nelson LM2, Gilligan T2, Martin J11, Getsios D2, Revankar N2, Willke RJ1, LiQ2, Ishak KJ3, Caro JJ2, Zou KH1
1Prism Health, Inc., Pittsboro, NC, USA, 2BioSource Corporation, Dorval, QC, Canada, 3AstraZeneca, New York, NY, USA
OBJECTIVES: Measuring patients’ quality of life is dependent on how their data are collected and analyzed. Does scoring integration, less missing data, improve data quality, and in some cases, decreased costs in data collection. To facilitate combining data from multiple versions, the goals of this study were to provide recommended steps to assess measurement comparability using a crossover study design and a case-finding questionnaire, the Lung Function Questionnaire (LFQ), as an example. METHODS: In the study, the LFQ was administered to participants via paper, Web, interactive voice response system, and interview. A randomized crossover design was used to gather data across the multiple administration types. In addition to the LFQ, participants completed demographic and health questions, and a short questionnaire assessing their administration preference. For recommended evaluation steps are described and illustrated using data from the crossover study: 1) comparisons of the item-level responses and agreement; 2) comparison of mean scale scores; 3) classification of scores; and 4) questions designed to collect usability score and comparability preference. RESULTS: In this example, item-level kappa statistics between the paper and the alternate versions ranged from good to excellent, intraclass correlation coefficients for mean scores were above 0.70, and the rate of disagreement ranged from 2% to 14%. In addition, although participants had an administration preference, they reported few difficulties with the versions they were assigned. CONCLUSIONS: The steps described provide a guide for evaluating whether to combine scores across administration versions to simplify analyses and interpretation under a crossover design. The guide recommends the investigation of the item responses, summaries, and participant usability/preference, and how they operate. Comparing data from each of these steps provides unique information to support a comprehensive evaluation and informed decisions regarding whether to combine data. Results of this particular study for each of the evaluation steps supported the use of multiple modes of the LFQ.

POSTER SESSION III: RESEARCH ON METHODS - STUDIES ON CLINICAL OUTCOMES METHODS

PM1 MEASURING COMORBIDITY: AN UPDATED CRITICAL REVIEW OF AVAILABLE METHODS
Hermon AB1, Carlini P2, Kennedy K3, Pietri C2
1Hermon AB, Stockholm, Sweden, 2HERON Evidence Development Ltd, London, UK
OBJECTIVES: Comorbidities are conditions or diseases besides the one of primary interest. A comorbidity index condenses all the coexistent conditions to a single score and comorbidity indexes have been extensively used to adjust analyses for the impact of comorbidities. De Groot and colleagues published a literature review in 2003 listing available indexes and reporting their validity. The objective of this study was to review published methods to measure comorbidity and thereby provide a update of the publication. We excluded the studies comparing more than two comorbidities and excluded any studies that evaluated questionnaire responses, summary scores, and participant usability/preference when comparing versions. Each of these steps provides unique information to support a comprehensive evaluation and informed decisions regarding whether to combine data. Results of this particular study for each of the evaluation steps supported the use of multiple modes of the LFQ.

PM2 MEASURING DRUG THERAPY GUIDELINES ON OUTCOMES: A TUTORIAL
Basler D
1STATMED Research, Ann Arbor, MI, USA
OBJECTIVES: To introduce a method that combines the propensity score matching and interrupted time-series models to measure drug therapy guidelines on outcomes. METHODS: Propensity score matching is used to balance groups before the trend model. The “window” is used for propensity score matching. Interrupted time-series models are applied over the matched sample. The time-series model contains two predictor variables: the binary intervention variable and an interval coding for time. This model controls for the confounding comorbidities (a) and ensures that any estimated change in the mean level of the series after intervention is not simply due to the fact that the series was already decreasing or increasing. RESULTS: To illustrate the model, changes in the utilization of two hypothetical drugs were analyzed after issuance of guidelines. Patients who used these two drugs were different at the baseline in

A145