

was 38.2 years (SD = 12.6) and 62.7% were female. 85.9% of our respondents were born outside Canada and 71.8% were ethnically from Asian areas. Effectiveness of the preventive treatment (*Risk of developing active TB after treatment*, -0.23 , $p < 0.001$), *Risk of developing liver damage* (-0.16 , $p < 0.001$), *Length of treatment* (-0.05 , $p < 0.001$), *Risk of developing skin rash* (-0.03 , $p = 0.002$), and *Risk of developing fatigue* (-0.03 , $p = 0.009$) were significant determinants of respondents' choices of preventive treatment. The negative preference estimates revealed that respondents were averse to higher risk of developing active TB, higher risk of developing liver damage, skin rash and fatigue, and longer period of treatment. *Frequency of clinic visit* was not a significant factor. Respondents' preferences varied according to their socio-demographic characteristics, past experiences of TB, BCG vaccination status, and the reason for tuberculin skin test. **CONCLUSIONS:** The results suggest that respondents were consistently in favor of LTBI preventive treatment with higher effectiveness, less side effects and shorter length.

PR355

COMPARISON OF PATIENT REPORTED OUTCOMES BASED ON THE MINNESOTA NICOTINE WITHDRAWAL SCALE (MNWS) USING ABSTINENCE PROFILES IN TREATMENTS WITH VARENICLINE AND TRANSDERMAL NICOTINE PATCH (NRT)

Marton JP¹, Zou KH¹, Russ C¹, Willke RJ²

¹Pfizer, Inc, New York, NY, USA, ²Pfizer, Inc, Peapack, NJ, USA

OBJECTIVES: To conduct a post-hoc analysis of the time-courses of MNWS item or domain scores (MNWS scores) and weekly point prevalence of abstinence (PVR) during the treatment phase of a previously-published (Aubin et al, 2008) randomized open-label clinical trial of varenicline (N = 376) vs. NRT (N = 370). **METHODS:** Current cigarette smokers, motivated to quit smoking, participated in the trial and completed the MNWS instrument. Descriptive statistics (mean \pm standard error) of the MNWS scores from weeks 2 to 7 were computed. Time-course comparisons stratified by PVR were performed, with weekly responders defined by PVR = 0 and non-responders otherwise. Multivariate repeated-measures mixed-effects regression was conducted for each MNWS domain score as the outcome variable. Covariates included baseline, treatment, patient characteristics, smoking history and PVR. Statistical significance was reached when two-sided $p \leq 0.05$. **RESULTS:** The mean baseline MNWS scores of varenicline vs. NRT were comparable. By PVR, varenicline significantly reduced the mean urge to smoke vs. NRT in weeks 2, 3, 4 and 5 (0.45 ± 0.10 ; 0.28 ± 0.09 ; 0.27 ± 0.10 ; 0.27 ± 0.09 , respectively; all $p < 0.01$) among responders, and in weeks 2 to 6 (0.59 ± 0.13 ; 0.44 ± 0.14 ; 0.46 ± 0.16 ; 0.52 ± 0.18 ; 0.38 ± 0.17 ; all $p < 0.03$) among non-responders. The mean negative affect scores were significantly lower in weeks 2 to 5 and 7 (0.31 ± 0.07 ; 0.20 ± 0.06 ; 0.18 ± 0.07 ; 0.23 ± 0.07 ; 0.13 ± 0.06 ; all $p < 0.03$) among responders and in week 2 (0.22 ± 0.11 ; $p < 0.04$) among non-responders. Additionally, restlessness was significantly reduced in weeks 2 to 5 (0.45 ± 0.10 ; 0.33 ± 0.09 ; 0.22 ± 0.09 ; 0.22 ± 0.08 ; all $p < 0.02$) among responders and in week 2 (0.42 ± 0.14 ; $p < 0.003$) among non-responders, and similarly the reduction of increased appetite (0.38 ± 0.18 ; $p < 0.05$) among nonresponders in week 7. **CONCLUSIONS:** Overall, lower mean patient-reported MNWS scores associated with symptoms of tobacco withdrawal were observed for varenicline than for NRT, reaching statistical significance, particularly among abstainers. Differences in the dynamics of treatment effects along with concomitant abstinence status warrant further bivariate analyses.

RESPIRATORY-RELATED DISORDERS – Health Care Use & Policy Studies

PR356

NEED FOR IMPROVING ACCESS TO ESSENTIAL MEDICINES AND TREATMENT BEHAVIOUR TO BRONCHIAL ASTHMA A CHRONIC DISEASE

Kotwani A

Vallabhbhai Patel Chest Institute, Univ of Delhi, Delhi, India

OBJECTIVES: It is expected that chronic diseases will account for 73% of deaths and 60% of the global diseases by 2020. India is experiencing a fast health transition, in 2005 chronic disease contributed to an estimated 53% of deaths and 44% of disability-adjusted life years lost. Chronic diseases are a serious public health issue, particularly because they require long-term therapy. Asthma, a major chronic disease, has become a cause of global concern in terms of its increasing prevalence, morbidity, and economic impact. Improving access to essential medicines and adherence to standard treatment guidelines can decrease the morbidity and mortality. The present scenario of access to essential medicines and treatment behaviour to asthma in India is investigated. **METHODS:** Recent studies conducted (2007–2009) on asthma management and adherence to therapy were analysed. Data on availability and price of two essential medicines for asthma, beclomethasone and salbutamol inhalers was collated from five medicine price studies conducted (2003–04) in five states of India, Haryana, Karnataka, Maharashtra, Rajasthan and Chennai (capital, Tamil Nadu state). **RESULTS:** Except for Rajasthan no inhalers were on state essential medicine list and were not available in any of the public facility; in Rajasthan these inhalers were available only in public facility of capital city. Results of the asthma management studies indicate poor knowledge regarding treatment of bronchial asthma by prescribers, pharmacists and by patients and asthma is not treated according to standard treatment guidelines. More than 80% patients and/or prescribers are treating acute episodes, rather than focusing on long-term asthma control. Ninety-two percent of patients alter the dose

of inhaled corticosteroids after the acute attack. **CONCLUSIONS:** Since the incidence of chronic diseases are increasing rapidly in India, there is urgent need for improving access to essential medicines, treatment guidelines, policy making, patient & provider education, and resource allocation for chronic diseases, like bronchial asthma.

PR357

DRUG UTILIZATION PATTERNS FOR PEDIATRIC ASTHMA IN AMBULATORY CARE SETTINGS

Yang M, Patel A, Aparasu RR

University of Houston, Houston, TX, USA

OBJECTIVES: This study examined the asthma medications prescribing patterns among pediatric asthma visits in ambulatory care settings in the United States. **METHODS:** A retrospective cross-sectional analysis of National Ambulatory Medical Care Survey (NAMCS) and the outpatient data of the National Hospital Ambulatory Medical Care Survey (NHAMCS) of year 2006–2007 was conducted involving children aged less than 18 years and diagnosed with asthma (ICD-9-CM 493.XX). The analyses focused on medications based on the guidelines of the National Asthma Education and Prevention Program (NAEPP). Descriptive statistics was used to examine the prescribing pattern. **RESULTS:** According to NAMCS and NHAMCS, there were 18 million (0.87%) physician office visits by children with asthma. Long Acting β_2 Agonist was highly prescribed among (57.50%) office visits, followed by Leukotrine Modifiers (29.91%) and Inhaled Corticosteroids (27.88%). Oral Corticosteroids and Short Acting β_2 Agonist were prescribed in 15.99%, and 14.18% of office visits, respectively. In terms of individual medicines, Albuterol, was mostly prescribed among 10.43 million visits, followed by Montelukast, 5.42 million visits. Prednisolone was prescribed in 2.71 million visits and Levalbuterol was prescribed in 2.36 million visits. **CONCLUSIONS:** Long Acting β_2 Agonist and Leukotrine Modifiers was the most highly prescribed medication class and Albuterol and Montelukast were highly prescribed individual medications in pediatric asthma ambulatory care visits in the United States.

PR358

DRUG PRESCRIBING PATTERN IN AMBULATORY CARE SETTINGS FOR CHRONIC OBSTRUCTIVE PULMONARY DISEASE IN 2006–2007

Parikh R, Mehta H, Patel J, Aparasu R

University of Houston, Houston, TX, USA

OBJECTIVES: To examine the prescribing pattern of drugs for the treatment of Chronic Obstructive Pulmonary Disease (COPD) in ambulatory care visits and to assess the variation in the prescription of first line of therapy across sex, race and geographic region. **METHODS:** Data of 2006–2007 National Ambulatory Medical Care Survey (NAMCS) and outpatient files of National Hospital Ambulatory Medical Care Survey (NHAMCS) were analyzed. Sample data was weighted to provide US national estimates. Adults more than 25 years of age were included in the study and COPD visits were identified (ICD-9-CM: 491,492,496). First line of therapy was defined as prescription of either beta-agonist or anticholinergics. Descriptive weighted analysis was performed to examine the prescribing pattern of drugs and multivariate logistic regression using complex survey design was conducted to identify variation for first line of therapy across sex, race and region, while controlling for age, tobacco use, insurance, metropolitan area, and region. **RESULTS:** In 2006–2007, COPD accounted for 70.25 million (95% CI: 60.69–79.81) ambulatory care visits by adult patients, representing 3.3% of the total ambulatory visits. Of these visits, majority were made by females (59.14%), whites (87.31%) and living in the southern region (44.78%). COPD medications were only prescribed in 42.13% of the visits. Highly prescribed medications were bronchodilators (34.33%), followed by combination therapy (9.66%) and inhaled corticosteroids (2.71%). First line of therapy was prescribed at 25.17% (95% CI: 21.62–28.72) visits: 19.16% visits received beta-agonist and 11.84% visits received anticholinergics. No variation was found across sex, race, and region for the prescription of first line of therapy for COPD. **CONCLUSIONS:** Bronchodilators were highly prescribed medication for COPD in outpatient visits. The first line of therapy did not vary significantly across sex, race and region for COPD.

PR359

ASSESSING DEMOGRAPHIC DISPARITIES IN UTILIZATION OF INHALED CORTICOSTEROIDS AMONG PATIENTS WITH PERSISTENT ASTHMA

Vaidya V, Partha G, Holl S

University of Toledo, Toledo, OH, USA

OBJECTIVES: To find out demographic factors predicting inhaled corticosteroid utilization among asthma patients. **METHODS:** The study utilized data from the four-state sample of National Asthma Survey (NAS), sponsored by the National Center for Environmental Health (NCEH), Centers for Disease Control. The study population consisted of patients with persistent asthma as (defined by the symptoms score based on NHLBI guidelines). Frequency distributions were made to characterize the study population. Logistic regression was carried out to determine the odds of reporting use of inhaled corticosteroids across various demographic variables (Age, gender, race, income level, insurance coverage, and disease severity). Data was analyzed using SAS v9.0. **RESULTS:** Underutilization of inhaled corticosteroids (ICSs) was found to exist in the asthmatic patients as over half of our study population (52.6%, n = 323) did not even report the use of ICSs. Disparities were also found to exist in our study across various variables. Blacks were found to have much lower odds of using ICSs when compared to other races (OR, 0.572; CI, 0.566–0.579). Black uninsured children also demonstrated similar trends. Patients having some form of

insurance coverage (OR, 1.768; CI, 1.745–1.792) and those having higher income (OR, 1.168; CI, 1.155–1.182) were found to have higher odds of using inhaled corticosteroids when compared to uninsured and people from low income categories respectively. Aside from these, disease severity also predicted the use of controller drug. Patients with increased severity had higher odds of using ICSs (OR, 1.552; CI, 1.537–1.568). The findings held true even after adjusting for other demographic factors. **CONCLUSIONS:** Underuse of ICSs continues to be a problem in asthma patients. This not only makes the control of disease difficult but shoots up the health-care expenditure. The study was successful in finding out vulnerable populations that can be targeted for inhaled corticosteroids use. The importance of adherence to treatment and inhaled corticosteroids use are issues that need to be addressed.

PR540

THE IMPACT OF THE FDA'S RISK EVALUATION AND MITIGATION STRATEGIES (REMS) INITIATIVE ON PRESCRIPTION PATTERN FOR DRUGS APPROVED UNDER THE REMS PROGRAM AND RELEVANT NON-REMS COMPETITORS

Horowicz-Mehler N¹, Sepulveda B¹, White C¹, Doyle J²

¹Quintiles, Hawthorne, NY, USA, ²Quintiles Global Consulting, Hawthorne, NY, USA

OBJECTIVES: To assess the impact of REMS approval on prescription pattern for three oral drugs used to treat common chronic conditions. We assessed relative impact on prescription volume for REMS-approved drugs against relevant competitors not requiring REMS. We described these trends over the 2006–2009 period including the 9/27/2007 implementation of the REMS initiative. **METHODS:** We paired two top prescribed drugs for the treatment of asthma (Advair/Singulair), diabetes (Actos/Avandia) and insomnia (Ambien/Lunesta). Each pairing included a REMS-approved drug (Advair, Actos and Ambien). We focused on the months leading to and following REMS approvals. For each pairing, volume of total prescriptions (TRx), new prescriptions (NRx) and prescription switches (SRx) were collected using the Verispan's VONA database. Statistical analyses were performed using one-way ANOVA. **RESULTS:** There were no significant changes ($p < 0.05$) in the volume of TRx, NRx and SRx for Advair or Actos prior to or following approval. However, Ambien TRx were significantly higher during and after the last quarter of 2008 compared to previous months ($p = .008$) while SRx were lower ($p = 0.04$). This increase did not come to the expense of Lunesta whose prescription volume stayed constant over the time period considered. **CONCLUSIONS:** The fear that additional safety requirements could be detrimental to drug prescriptions was not confirmed in our analyses. In fact, FDA requirement for REMS approval appeared to impact prescription volume favorably for one of the drugs considered. One possible explanation is the potential for increased interactions with providers thus the ability to better position the drug clinically. However, these trends were observed with less than a two-year period post-approval and only for a handful of drugs and conditions. Additionally, the differential impact of various REMS components such as medical guide and communication plan should be further investigated.

PR541

NATIONAL ANTI-ALLERGIC DRUG UTILIZATION PATTERNS IN ADULTS WITH ALLERGIC RHINITIS: NATIONAL AMBULATORY CARE SURVEY RESULTS.

Goyal RK, Patel HK, Sangani D, Aparasu RR
University of Houston, Houston, TX, USA

OBJECTIVES: To examine recent anti-allergic drug utilization patterns in adult patients with allergic rhinitis using National Ambulatory Care Survey data. **METHODS:** Data for this study was obtained from the 2006 and 2007 National Ambulatory Medical Care Survey (NAMCS) and National Hospital Ambulatory Medical Care Survey (NHAMCS) public use data files. Visits with a primary diagnosis of allergic rhinitis in adults (age >18 years) were identified. Descriptive weighted statistics was used to examine utilization patterns of various anti-allergic medications. A multivariate logistic regression was conducted to determine demographic and geographic variations associated with anti-allergic medication use in patients with allergic rhinitis. **RESULTS:** Allergic rhinitis accounted for 18.6 million adult ambulatory care visits in the United States. The majority of the visits were made by females (61.6%), whites (84.8%), and involved specialists (59.9%). Anti-allergic medications were prescribed in 55.1% (95%CI 39.2%–71.0%) of the total diagnosed visits. Antihistamines were the most commonly prescribed anti-allergic medication (37.4%) (95%CI 32.4%–46.5%) followed by intranasal steroids (28.3%) (95%CI 23.2%–31.8%). Topical nasal antihistamines and decongestants (7.8%) (95%CI 2.7%–9.9%), leukotrienes (6.3%) (95%CI 5.2%–6.8%), corticosteroids (3.4%) (95%CI 1.3%–4.3%), and oral decongestants (1.52%) (95%CI 0.4%–2.1%) were the least prescribed anti-allergic medications. The multivariate logistic regression revealed that geographic region of the office visits was significantly associated with medication use. Outpatient visits in the Midwest (Odds Ratio (OR) 5.16, 95%CI 1.50–17.67), South (OR 6.3, 95%CI 2.03–19.5), and West (OR 9.16, 95%CI 2.39–35.11) regions were more likely to be prescribed anti-allergic medications compared to those in the Northeast region. **CONCLUSIONS:** Anti-allergic medications were prescribed in over half of adult allergic rhinitis visits in the U.S. The findings highlight geographical variations in anti-allergic medication use for allergic rhinitis. Comprehensive research is needed to understand the reasons for geographic variation in the medication use for allergic rhinitis.

IMPACT OF THE UK PUBLIC SMOKING BAN ON THE PRESCRIBING OF SMOKING CESSATION THERAPY IN PRIMARY CARE—A THIN DATABASE STUDY

Blak BT, Hards M, Thompson M, Dattani H
CSD EPIC, London, UK

OBJECTIVES: Over-the-counter nicotine replacement purchases increased immediately after the public smoking ban introduction in Scotland. The study objective was to evaluate the impact of the smoking bans throughout the UK on smoking cessation prescriptions (SCPs) or related general practice contacts (GPCs) in primary care. **METHODS:** Monthly data on SCPs (nicotine replacement therapy, bupropion, varenicline) and GPCs were obtained from The Health Improvement Network (THIN) database, which holds anonymised longitudinal UK primary care data, 24 months before and after the ban in England (January 7, 2007), Wales (February 4, 2007), Scotland (March 26, 2006) and Northern Ireland (NI) (April 30, 2007). The percentage of active patients with ≥ 1 SCP and the percentage of GPCs which were smoking cessation-related were evaluated. Mann-Whitney tests compared percentages before and after the ban. **RESULTS:** Within each country SCPs increased slightly after the smoking ban, for example during the total 48 months 431,675 SCPs were prescribed in England, with 48.7% prescribed before the ban and 51.3% after. The median percentage of patients with ≥ 1 SCP increased slightly after the ban—in England the median was 0.28% before and 0.31% after, with no evidence of a difference ($p = 0.18$), in Wales 0.36% and 0.49% ($p = 0.001$) respectively; Scotland 0.36% and 0.37% ($p = 0.85$), and NI 0.48% and 0.54% ($p = 0.09$). The median percentage of GPCs decreased slightly—in England it was 1.87% before and 1.57% after, Wales 2.08% and 1.81% respectively, Scotland 2.70% and 1.64%, and NI 2.95% and 2.34%. There was evidence of a difference ($p < 0.0001$) in each country. **CONCLUSIONS:** The ban did not seem to impact smoking cessation activity in primary care greatly. Even though only significant for Wales, the slight increase in patients with SCPs may be owing to the ban. The decrease in smoking-related GPCs could be owing to patients being referred to or seeking support outside of primary care.

PR543

PRESCRIBING ANTIBIOTICS FOR ACUTE RESPIRATORY TRACT INFECTIONS BY PRIMARY CARE PHYSICIANS IN NEW DELHI, INDIA

Kotwani A¹, Roy Chaudhury R², Holloway K³

¹Vallabhbai Patel Chest Institute, Univ of Delhi, Delhi, India, ²Indraprastha Apollo Hospitals, New Delhi, India, ³World Health Organisation, Geneva, Switzerland

OBJECTIVES: In the absence of community-based databases on antibiotic use in developing countries recently a methodology was established for surveillance of antibiotic use at New Delhi by conducting 'Exit Interviews' of the patients. This study was conducted to obtain information on current prescribing rates of antibiotics in acute respiratory illnesses (ARI), a condition where misuse of antibiotics is common. **METHODS:** Antibiotic use data was collected from public and private sector facilities from four municipal wards (residential localities) around a tertiary care hospital where the antibiotic resistance work was being conducted. For public sector, 8 dispensaries (primary health care) and 2 secondary care level facilities were enrolled. For private sector, 20 willing and cooperative general practitioners and specialists practising in the chosen areas were selected. Patients after consultation with prescriber were asked if they had cough/common cold/sore throat (symptoms of ARI). Patients with any of these symptoms were enrolled for exit interview and his/her prescription was monitored. Antibiotic use data was collected per month over one year (December 2007–November 2008). The percentage of patients receiving antibiotic and pattern of consumption for various antibiotics was analysed. **RESULTS:** At public facilities 45.3% (746/1646) and at private facilities 56.7% (259/457) of patients with ARI were prescribed at least one antibiotic. In public sector, macrolides (29.3%), penicillins (26.3%), and cephalosporins (16.2%) and in private sector, cephalosporins (40%), fluoroquinolones (21.7%), and penicillins (19.7%) were mainly prescribed. At public facilities, main members from macrolides were roxithromycin and erythromycin; for penicillins, amoxicillin and amoxicillin-clavulanic acid; for cephalosporins, cefuroxime and cephalexin were used. At private clinics, for cephalosporins, cefuroxime, cefpodoxime proxetil, cefixime, cefixime-clavulanic acid; for fluoroquinolones, levofloxacin and ofloxacin; and for penicillins group amoxicillin-clavulanic acid were prescribed. **CONCLUSIONS:** Over-prescription and irrational use of antibiotics was seen in ARI. In-depth behaviour study for prescribers and strategies to manage ARI are needed.

PR544

ANTIBIOTIC PRESCRIBING FOR ACUTE RESPIRATORY TRACT INFECTIONS IN ADULT PRIMARY CARE: IS GOOD INSURANCE BAD FOR ANTIBIOTIC PRESCRIBING?

Zhang J¹, Tao J²

¹Virginia Commonwealth University, Richmond, VA, USA, ²Virginia Commonwealth University, Richmond, VA, USA

OBJECTIVES: Substantial overuse of newer broad-spectrum antibiotics has been a grave public health concern as it results in drug resistance and substantial health care costs. Little is known about how health insurance status is related with the prescribing of antibiotics at the adult primary care. We aim to assess the relationship between broad-spectrum antibiotic prescribing and patients' insurance status in treatment of acute respiratory tract infections (ARTI) in adult primary care using a nationally representative sample. **METHODS:** We analyzed 2006 National Ambulatory Medical Care Survey, for adult aged 18 years or older cared for ARTI. Those patients with a concomitant diagnosis with other common outpatient infections that might be