utal to nasal congestion are substantial. These high costs emphasize the importance of diagnosing and treating nasal congestion.

**PRS16**

**INCREMENTAL DIRECT MEDICAL EXPENDITURES ASSOCIATED WITH ADULT ASTHMA IN THE UNITED STATES**

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**OBJECTIVE:** To determine the incremental direct medical expenditures of treating adult asthma in the United States.

**METHODS:** Retrospective analysis was conducted using the 2004 Medical Expenditure Panel Survey (MEPS) data. Adult asthma respondents (age ≥18 years; n = 1552) were identified as those with International Classification of Diseases (ICD)-9 diagnosis codes for asthma or those that self-reported as having asthma in 2004. Incremental total expenditures and expenditures for various categories of resource use, i.e., physician office visits, emergency room visits, outpatient visits, inpatient visits, medications and other medical expenses associated with asthma, were estimated using separate multivariate regression models. The models were adjusted for age, gender, race, ethnicity, education, marital status, geographic region, insurance status and comorbidities (using the Charlson comorbidity index). Given the skewed distribution of expenditure variables, multiple model specifications including ordinary least squares regression, generalized linear model (GLM) with Poisson, gamma and negative binomial variance functions were evaluated. **RESULTS:** The prevalence of current asthma among adults in 2004 was estimated at 6.84%, i.e., 14.9 million persons (95% CI: 6.43% to 7.26%) in the United States. Individuals with asthma had 68% higher total expenditures than non-asthmatics after controlling for covariates (RR: 1.68; p < 0.0001). The annual adjusted mean incremental total expenditure associated with asthma was $1953.7 (SE: $500.1; p <0.0001) per person. Medications accounted for the largest proportion of the total expenditures estimated at $609.4 (SE: $32.0; p < 0.0001), followed by physician office visits at $364.3 (SE: $86.9; p <0.0001) and inpatient visits at $297.3 (SE: $191.2; p = 0.074). **CONCLUSION:** Given the prevalence of adult asthma and its associated incremental expenditures, the annual direct medical expenditure for treating adult asthma is estimated at $29.2 billion in 2005 USD. This estimated incremental expenditure associated with asthma is more than twice the cost of asthma reported in previous studies.

**PRS17**

**ECONOMIC OUTCOMES IN PATIENTS WITH CYSTIC FIBROSIS: A REVIEW OF THE LITERATURE**

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**OBJECTIVE:** To review up-to-date economic outcomes data in patients with cystic fibrosis (CF), especially costs related to respiratory infection by Pseudomonas aeruginosa (Pa), the leading cause of morbidity and mortality in CF patients. **METHODS:** A systematic search of the MEDLINE database from 1990–2007 was conducted, using the terms “cystic fibrosis” and “cost.” Selected conference abstracts were also searched. Recent articles that contained economic data on antibiotic and mucolytic therapies were selected for in-depth review. **RESULTS:** In-depth review was performed on 27 articles that examined the economic impact of inhaled tobramycin (2 articles), the effect of home- vs. hospital-based antibiotic therapies for pulmonary exacerbations (4), economic impact of recombinant human deoxyribonuclease (rhDNase) (10), and cost-of-illness for CF (11). Inhaled tobramycin led to reductions in health care costs that offset 37%–57% of the drug cost. Home-based antibiotic therapy for exacerbations generally resulted in lower health care costs than hospital-based administration. Use of rhDNase led to reductions in health care costs that offset 17%–38% of the drug cost. Cost-of-illness studies have been conducted in 7 countries; the economic estimates varied widely ($9,000 to $64,000/patient/year; 2006 US dollars) due to differences in treatment patterns, health systems, methodologies, and subjects. Most cost-of-illness studies were retrospective observational studies of direct costs from the perspective of a hospital or third-party payer. The largest cost categories included hospitalizations, out-patient visits, rhDNase and antibiotics. Disease severity and Pa infection were major determinants of cost. **CONCLUSION:** Studies show that inhaled tobramycin and rhDNase partially offset medical costs; home-based antibiotic therapy likely reduces costs; and direct costs can be high but vary widely across countries and analytical methodologies. Areas for future research include direct comparisons of inhaled antibiotic therapies, examination of the relationship between treatment adherence and economic outcomes, and estimation of societal cost-of-illness.

**PRS18**

**COST-UTILITY ANALYSIS OF VARENICLINE, AN ORAL SMOKING CESSATION DRUG, IN JAPAN**

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**OBJECTIVE:** To conduct a cost-utility analysis by comparing two scenarios in Japan: smoking cessation counseling by a physician versus use of varenicline, an oral smoking cessation drug, in addition to counseling. **METHODS:** A Markov model was constructed to analyse life-time medical costs and Quality-Adjusted Life Years (QALYs) from the perspective of health care payers. In the Markov model, five years were set as one cycle. Both cost and utility were discounted at 3% annually. The cohort of smokers was classified by gender and age, and we assumed that smokers started smoking aged 20 years and received smoking cessation therapy aged 30, 40, 50, 60, or 70 years. The health care cost and QALYs were calculated throughout the term until 90 years. We chose three parameters for sensitivity analyses—success rate of varenicline, unit price of varenicline and discount rate. In the base-case analysis, success rates of varenicline and placebo were assumed to be 37.9% and 25.5%, respectively, in male smokers, and 22.2% and 16.1%, respectively, in female smokers, based on a randomized controlled trial conducted in Japan. We chose QALY for outcome measurement. Quality weight for each tobacco-associated disease was derived from the literature. **RESULTS:** It was shown that the scenario where varenicline was prescribed is more effective and less costly than giving smoking cessation counseling alone. Varenicline would save direct medical costs of JPY 26,000 (USD226, USD1 = JPY115) and increase 0.094 QALY in male smokers. Regarding the budget impact, varenicline is estimated to save JPY 23.7 billion (USD 206 million) of the medical costs for tobacco-associated diseases for the whole population. Sensitivity analyses suggested the robustness of the results. **CONCLUSION:** Varenicline, the first oral treatment for smoking cessation in Japan, is cost-effective and will contribute to the reduction of medical costs.