PRS13

THE IMPACT OF ASTHMA ON LOSS OF PRODUCTIVITY AND MEDICAL COSTS

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OBJECTIVES: The objective was to evaluate the direct and indirect costs of asthma in working US adults. **METHODS:** Asthma patients with ≥1 primary asthma diagnosis, or ≥1 asthma diagnosis any level and ≥1 asthma prescription, or ≥2 asthma diagnoses any level between January 2003 and December 2005 in the Thomson Reuters MarketScan® Commercial Database and Health and Productivity Management Database were extracted. Patients were 18–64 years old, had full-time employment, were eligible for absence, or short-term disability (STD), or workers' compensation (WC) and were continuously enrolled 12-month pre/post the index date (first asthma diagnosis or asthma medication claim). Those with emphysema or COPD were excluded. The controls had no asthma claim and met the same inclusion and exclusion criteria. An index date was assigned to controls by adding a number to January 2003 that was randomly drawn from a pool of days between January 2003 and index date for each asthma patient. Propensity score techniques were used to match asthma patients to controls based on baseline demographic and clinical characteristics. **RESULTS:** A total of 13,379 asthma patients were matched to 13,379 controls comprising of 3,453 patients with absence eligibility, 8,497 with STD eligibility and 8,264 with WC eligibility in each of the asthma and control group. Most baseline characteristics after matching were very similar. Asthma patients had $1,988 higher direct medical costs than matched controls ($p < 0.001$) during the 12-month follow up. They experienced 1.2 more absence days ($p = 0.0142$), 2.2 more STD days ($p < 0.001$) and 1.3 more WC days ($p < 0.001$) than controls. This translated into $166 ($p = 0.041$), $248 ($p < 0.001$) and $59 ($p = 0.009$) more in indirect costs respectively. **CONCLUSIONS:** Asthma patients experience significantly greater work loss and medical costs than patients without asthma. Asthma treatments can potentially benefit in reducing absenteeism and costs.

PRS14

ANALYSIS OF OUTCOMES AND COSTS FOR PERSISTENT ASTHMA PATIENTS TREATED WITH BECLOMETHASONE DIPROPIONATE OR FLUTICASONE PROPIONATE

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OBJECTIVES: Examine outcomes and costs for persistent asthma patients who initiated therapy with beclomethasone dipropionate (BD) or fluticasone propionate (FP). **METHODS:** MedStat's Commercial Claims and Encounter Database (July 1, 2002 – June 30, 2007) was utilized. Patients who initiated therapy with BD or FP (first use = index date) and met the following criteria: a) no receipt of other study medication in the 1 year post-period; b) persistent asthma in the 1 year pre-period; c) age 5–64; d) no diagnosis of COPD; and e) continuous insurance coverage from 1 year pre through 1 year post-period were included. Multivariate regressions (N = 13,968) examined the probability of an ER visit or hospitalization, probability of reaching alternative adherence thresholds and annual costs. **RESULTS:** Receipt of BD, compared to FP, was associated with a 17% reduction in the odds of an ER visit (OR = 0.834, 95% CI 0.751–0.925), 30% reduction in the odds of an asthma-related ER visit (OR = 0.697, 95% CI 0.571–0.852), as well as a significant increase in the odds of obtaining a medication possession ratio (MPR) of at least 50% (OR = 1.324; 95% CI 1.164–1.506) or 75% (OR = 1.311; 95% CI 1.072–1.604). Total medical costs ($5,063 v $5,377, $p = 0.0042$), drug costs ($2336 vs. $2581, $P < 0.0001$) and ER costs ($185 vs. $249, $p < 0.0001$) were significantly lower among the BD cohort. Asthma-related outpatient ($191 vs. $224, $P < 0.0001$) and ER costs ($28 vs. $45, $P < 0.001$) were significantly lower in the BD group while asthma-related inpatient ($59 vs. $101 $P < 0.0001$) and drug costs ($451 vs. $540, $P < 0.0001$) were significantly lower in the FP cohort. **CONCLUSIONS:** Results indicate that receipt of BD, compared to receipt of FP, is associated with a decreased probability of ER visits or asthma-related ER visits, and higher odds of reaching a MPR threshold of 0.50 or 0.75. Receipt of BD was also associated with lower annual total medical and drug costs.

PRS15

SIMULATING COST-EFFECTIVENESS OF STEPPED CARE VERSUS REPEAT CARE IN SMOKING CESSATION

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OBJECTIVES: Smoking is the leading avoidable cause of premature morbidity and mortality in the United States, attributable to over 400,000 annual deaths and $167 billion in health care costs. Nicotine addiction remains a key barrier to smoking cessation; for this reason, repeated intervention and multiple quit attempts are necessary. Stepped care is possibly a viable intensive approach for achieving long-term smoking cessation. This study uses modeling techniques to predict outcomes of a current study of stepped care in smoking cessation. It is expected that, though more costly, incremental cost-effectiveness of stepped care will fall well short of accepted thresholds. **METHODS:** A simulation model was created in TreeAge to replicate the Step Care study. Both arms receive pharmacotherapy and counseling; these therapies intensify in the step care arm. Various data sources were used to estimate transition probabilities and costs. The model was run 1,000 times to produce estimates of cost-effectiveness of the stepped care regimen relative to repeat therapy in producing point-prevalent cessation. **RESULTS:** As expected, the model produced a favorable incremental cost-effectiveness ratio (ICER) for stepped care relative to repeat care ($941/quit). Step care and Recycle arms produced mean costs of $740 (95% CI: $540–840) and $665 (95% CI: $520–740), respectively. On average, 31% of step care patients achieved point-prevalent cessation at study end, compared to only 23% of patients in the recycle. In the simulation, 37% of step care patients required each step of therapy; in the recycle arm, an average 2.2 quit attempts were made with patch therapy. **CONCLUSIONS:** The results of the Step Care simulation are promising for achieving progress in tobacco cessation efforts. The population represented in the Step Care study is a difficult-to-treat population—predominately low-income smokers with high rates of nicotine dependence. Treatment guidelines suggest this population to be appropriate for more intensive intervention.

PRS16

AN ECONOMIC EVALUATION OF A PHARMACOLOGICAL INTERVENTION USING VARENICLINE AS THERAPY FOR SMOKING CESSATION

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OBJECTIVES: Evaluating the cost-effectiveness and cost-utility of a pharmacological intervention for smoking cessation comparing varenicline, bupropion, nicotine replacement therapy (NRT) and unaided cessation in Colombia. **METHODS:** A full economic evaluation was made using the BENESCO (Benefits of Smoking Cessation on Outcomes) model. Such model simulates a cohort of smokers making a single attempt to quit, using different strategies. The model was inputted demographic and epidemiological data corresponding to the Colombian adult population. A systematic review was made to identify the effectiveness of varenicline and the alternative interventions. This review was complemented by consulting available data sources in Colombia in order to estimate disease burden for lung cancer, chronic obstructive pulmonary disease, coronary hearth disease and stroke. The cost of attending these diseases was estimated from a third-payer perspective using HMO and health care provider records. The medicament's cost corresponded to the average of a survey of prices regarding a set of pharmaceutical vendors representative of the market. It was assumed that unaided cessation involved no cost for the third-payer. The clinical and economic results of the four intervention options were projected using the BENESCO model at 2-, 5-, 10- and 20-year time-horizons; such projections were used to calculate incremental cost-effectiveness (ICER) and cost-utility (ICUR) ratios. Future clinical and economic outcomes were discounted at a 3% annual rate; all costs were assessed in US$2007. **RESULTS:** Varenicline dominated NRT and bupropion considering all time-horizons. When compared to unaided cessation, dominance was found in 20-year and lifetime projections; in 10-year projections it was found an ICUR = USD$11,711 for QALY gained and ICER = USD$24,349 per life year gained; however, varenicline was not cost-effective when evaluating 2–5 year projections. **CONCLUSIONS:** Supportive pharmacological interventions for smoking cessation could be promising alternatives for controlling the diseases being evaluated. Varenicline is the most cost-effective of the interventions currently available in Colombia.

PRS17

A COST-CONSEQUENCE ANALYSIS COMPARING AN ESTABLISHED AND A NOVEL EPINEPHRINE AUTO-INJECTOR FOR ANAPHYLAXIS

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OBJECTIVES: Anaphylaxis is a rare yet potentially fatal allergic reaction. While at-risk patients are advised to carry self-injectable epinephrine with them at all times, many do not. We examined the costs and consequences of using an established device versus a novel device being developed by Intelliject, Inc. for treatment of a uniphasic anaphylactic reaction. Because of its smaller size and user-friendly design, the new device is expected to be carried and used correctly more often than the established device. **METHODS:** A decision tree model for costs and consequences was created using DATA TreeAge 3.0. Consequences included recovering without visiting the emergency department (ED), ED use, and hospitalizations. Direct costs were estimated for device use, ED use, and hospitalizations. Data were obtained from the literature, HCUPnet (online query tool for Healthcare Cost and Utilization Project), and Intelliject's clinical study programs. For the purpose of this analysis, the price of the new device was assumed to be twice that of the established device. One-way sensitivity analyses were conducted for patients' probabilities of carrying the device and using it correctly and of recovery and death after using the device incorrectly. **RESULTS:** Base case results per 100 patients indicate that the new device would lead to more patients recovering without visiting the ED (57 vs. 35), similar rates of ED use without hospitalization (7) and fewer hospitalizations (2 vs. 4). The results also indicate higher device costs ($15,837 vs. $6,291) and same ED use costs ($9,375) but lower costs for hospitalizations ($15,303 vs. $30,606); leading to lower total costs for the new device ($40,515 vs. $46,272). Sensitivity analyses indicate that the new device would have lower total costs and lead to better consequences under most tested assumptions. **CONCLUSIONS:** At the assumed price premium, the new device provided lower total costs, higher recovery rate as well as fewer hospitalizations.