Prior surveillance has shown that higher rates of morbidity and mortality related to asthma occur among African-Americans compared to other ethnic groups. **OBJECTIVE:** To assess utilization and costs for medical services and prescription medications among African-American patients with asthma whom does Medicaid cover. **METHODS:** Medical services claims with a primary diagnosis code for asthma (ICD-9 CM 493) during calendar year 2002 for recipients of African-American ethnicity were extracted from a state Medicaid claims database. Asthma-related prescription claims were extracted using unique and anonymous recipient codes obtained from the medical claims. Claims for recipients aged 65 years and older were excluded. Cost data were from the perspective of Medicaid. **RESULTS:** There were 654 African-American recipients identified with asthma. Among these, the highest rates for asthma occurred among males under 21 years (43 per 1000) and females over 20 years (38 per 1000). Medicaid paid over $570,000 for asthma-related health care services for African-American recipients. Mean costs per visit were $3409 for hospitalizations, $159 for emergency department (ED) visits, and $102 for outpatient visits. Compared to females, males had a higher rate of inpatient admissions (32 per 10,000), ED visits (170 per 10,000), and outpatient visits (68 per 1000) for asthma. Compared to children, adults over 20 years had a higher rate of inpatient admissions (30 per 10,000), ED visits (150 per 10,000), and outpatient visits (68 per 1000) for asthma. The total cost for prescription medications equaled approximately $256,000, at an average cost of $49 per prescription. Of the prescription claims for asthma-related medications, about 60% were for quick-relief medications and 40% were for maintenance drugs. Among claims for maintenance drugs, most were for leukotriene inhibitors. **CONCLUSIONS:** Males utilized medical services more frequently than females, as did adults compared to children. Quick-relief medications accounted for most of the prescription claims.

**PAA10**

**BUDGET IMPACT ANALYSIS: COMBINATION FLUTICASONE AND SALMETEROL FOR ASTHMA**

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**OBJECTIVES:** The objective of this study was to estimate the budget and health impact of increasing use of combination fluticasone propionate and salmeterol (FS) in a managed care formulary by adults with mild to moderate persistent asthma. **METHODS:** An EXCEL-based model was developed to estimate the impact of increasing use of FS in the mix of treatments used for persistent asthma including fluticasone propionate (FP), salmeterol (SAL), other inhaled corticosteroids (ICS), leukotriene modifiers (LTMs), other combination therapies, and short-acting beta-agonists (SABA). The analysis was conducted from a health plan’s perspective. Efficacy, adverse events, epidemiology, compliance, and cost data were obtained from published estimates including randomized controlled trials. The health plan was assumed to have 1,000,000 members. Treatment mix for asthma was based on market research data. An exponential relationship between compliance and efficacy was assumed for compliance with asthma drugs, and the relationship between compliance and efficacy with PMPM changes ranging from a saving of $0.01/PMPM to an increase of $0.06/PMPM for feasible alternative scenarios. **CONCLUSION:** An increase in market share of FS will have a small impact on the overall budget of a health plan in our base case and feasible alternative scenarios. This budget increase will be accompanied by reductions in exacerbations and other disease symptoms.

**PAA11**

**EFFECTIVENESS AND COST-BENEFIT OF LEUKOTRIENE MODIFIERS IN ADULTS WITH ASTHMA IN THE OHIO MEDICAID POPULATION**

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**OBJECTIVES:** To determine the impact of leukotriene modifiers on subsequent emergency room visits, hospitalizations and steroid bursts; and to estimate whether leukotriene modifier use is cost-beneficial. **METHODS:** A retrospective, longitudinal study of 5541 adult asthmatic patients in the Ohio Medicaid program used rate of adverse outcomes and logistic regression to determine the impact of leukotriene modifier use on three outcome measures: emergency room visits, hospitalizations, or steroid bursts. Propensity scores were used to control selection bias inherent in drug treatment selection in natural databases. A cost-benefit analysis was also calculated. The cost-benefit ratio was defined as the difference in asthma drug costs between the leukotriene users and nonusers divided by the difference in outcome costs between the users and nonusers. **RESULTS:** Leukotriene modifier users had 13.9 events per one hundred patients versus the nonusers who had 11.1 events per one hundred patients. In logistic regression models, the use of leukotriene modifiers did not significantly impact the odds of any outcome measures: Emergency Room Visits OR 1.163, 95% CI 0.913–1.483; Hospitalizations OR 1.061, 95% CI 0.685–1.643; Steroid Bursts OR 1.362, 95% CI 0.933–1.988. The mean cost of all asthma drugs received by leukotriene modifier users was $327.19 and for nonusers was $186.70. The mean cost of all outcome measures was $104.80 for leukotriene modifier users and $99.89 for nonusers. This resulted in a cost benefit ratio equal to 28.6. **CONCLUSIONS:** Logistic regression models suggest that the use of leukotriene modifiers did not have a positive or negative significant effect on any of the outcome variables. Leukotriene modifier users did have higher rates of adverse outcomes. The cost benefit analysis shows that there was a total net loss to Ohio Medicaid. The results suggest that leukotriene modifier users do not have improved outcomes or improved cost-benefit when compared to nonusers.

**PAA12**

**RESOURCE UTILIZATION (HOSPITAL AND PHYSICIAN COST/VISITS) BEFORE AND AFTER INTRODUCTION OF THE NEW TREATMENT GUIDELINES IN ASTHMA (1997) AND ODDS OF BEING ON APPROPRIATE ASTHMA THERAPY USING MULTIVARIATE LOGISTIC REGRESSION**

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**OBJECTIVE:** To evaluate the resource utilization after introduction of new treatment guidelines in Asthma (1997). **METHODS:** Paid claims for pharmacy services during the period 1994 through 2000 were collected. Chronic users (CUS); using more than 10 canisters of beta-inhaler/year. Patients were further categorized: CHBYAi (CUSs, using some anti-inflammatory rescue-free days and reduction of 155 exacerbations. Results are sensitive to changes in drug costs, drugs used before FS, compliance with asthma drugs, and the relationship between compliance and efficacy with PMPM changes ranging from a saving of $0.01/PMPM to an increase of $0.06/PMPM for feasible alternative scenarios. **CONCLUSION:** An increase in market share of FS will have a small impact on the overall budget of a health plan in our base case and feasible alternative scenarios. This budget increase will be accompanied by reductions in exacerbations and other disease symptoms.
medication; “appropriate therapy”) and CHBNAi (CUs not using any anti-inflammatory medication). Univariate analyses for continuous variables was performed using Mann-Whitney U test; and multivariate logistic regression was performed to predict the probability of being on appropriate therapy. RESULTS: A total of 1127 chronic users were identified (474 before and 653 after the introduction of the guidelines). A higher proportion of CHBYAi patients were found after the introduction of the guidelines (7%, Chi-square test, p-value = 0.041). However, both before and after the introduction of the guidelines the CHBNAi had significantly fewer asthma-related total (physician, ER and hospital) visits and costs (all p-value = 0.000). Multivariate logistic regression results indicated that total asthma-related visits was significantly associated with the odds of being on appropriate therapy. Before the guidelines, for every asthma related visit the odds of being on appropriate guidelines was found to be 1.544 (95% CI: 1.327–1.797); for every asthma related visit the odds of being on appropriate therapy was found to be 1.937 (95% CI: 1.624–2.309). CONCLUSION: We would have expected a higher health care utilization (visits & cost) for the CHBNAi group but we could not conclude this.

COSTS FOR ASTHMA-RELATED MEDICAL SERVICES AND PRESCRIPTION MEDICATIONS IN A STATE MEDICAID PROGRAM
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Previous studies have shown that costs for asthma care tend to be higher among recipients of Medicaid compared to patients covered by private insurance. OBJECTIVE: Report the costs for asthma-related health care in a state Medicaid Program. METHODS: Medicaid medical services claims with a primary ICD-9 diagnosis code for asthma dated 2002 were extracted. Matching claims for asthma-related prescription medications also were collected. Costs for outpatient visits, emergency department (ED) visits, and prescriptions were based on dollars reimbursed by Medicaid. Costs for hospitalizations were estimated based on average DRG reimbursements. RESULTS: There were 16,573 recipients with claims for asthma. Among demographic groups, a majority of recipients were younger than 15 years (44%), female (58%), and white (93%). Medicaid paid roughly $12.9 million for asthma-related medical services and prescriptions, or an average of $779 per recipient with asthma. A majority of the dollars were paid for services and prescriptions utilized by adults between 21 and 64 years of age (49%), females (61%), and caucasians (93%). Hospitalization costs amounted to $3.5 million (27% of the total) at an average cost of nearly $4000 per admission. ED costs equaled over $619,000 (5% of the total) at an average cost of $169 per visit. Outpatient costs were nearly $2.4 million (19% of the total) at an average cost of $83 per visit. Prescription costs totaled $6.2 million (48% of the total) for an average cost of $51 per prescription. A majority of the dollars paid for prescriptions were for leukotriene modifiers (33%), short-acting beta-agonists (23%), and inhaled corticosteroids (21%). CONCLUSIONS: Asthma is responsible for a substantial consumption of economic resources of the Medicaid Program. Roughly half of the dollars Medicaid spends for asthma care is for medical services and half for prescription drugs. Hospitalizations account for a majority of medical services costs.

THE EFFECT OF MEDICAID COVERAGE DECISIONS ON NON-SEDATING ANTIHISTAMINE UTILIZATION AND SPENDING FOLLOWING OVER-THE-COUNTER AVAILABILITY OF LORATADINE
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OBJECTIVES: This study evaluates the effect of over-the-counter (OTC) availability of loratadine on utilization and spending in a state Medicaid population without OTC coverage. Using a subset of nearly 100,000 enrollees before and after loratadine OTC availability, the specific objectives of this study were to: 1) evaluate product switching behavior; 2) describe non-sedating antihistamine utilization patterns; and 3) describe non-sedating antihistamine expenditures and their response to OTC availability. METHODS: The study was conducted retrospectively using paid pharmacy claims for a subset of Medicaid beneficiaries. Non-sedating antihistamine use was evaluated for two 12 month intervals encompassing July 1, 2001 through June 30, 2003. Within each interval, the rate of product switching between the first 5 months and last 5 months was evaluated. Trends in utilization and spending were tracked for the entire 24-month period. RESULTS: Beneficiaries using loratadine in the OTC availability interval were 2.4 (95% CI; 2.08–2.41) times more likely to switch to a different non-sedating antihistamine and 1.09 (95% CI: 1.08–1.12) times more likely to not have a non-sedating antihistamine claim than beneficiaries in the non-OTC availability interval. The largest gain in market share was observed for cetirizine, although desloratadine accounted for the largest switch rate from loratadine. During the first 12 months of the study, non-sedating antihistamine expenditures increased by nearly $28,000 per month. Despite availability of a less costly alternative, expenditures increased by $13,000 per month during the last 12 months. CONCLUSIONS: Although utilization and spending tapered slightly after the introduction of loratadine OTC, the majority of beneficiaries using loratadine switched to a covered alternative once the OTC product was on the market. Given the potential cost-savings associated with OTC loratadine (compared to the prescription only competitors) and the high likelihood of switching, it appears that state Medicaid programs should consider coverage of both prescription and OTC products.

ASTHMA/ALLERGY (including ARDS)—Quality Of Life/Adherence/Patient Preferences

INVESTIGATION OF THE DETERMINANTS OF ADHERENCE IN ASTHMA USING Q METHODOLOGY
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OBJECTIVE: To identify patient behaviors that affect adherence regarding asthma and its management using Q-methodology. New insight into patient attitudes may facilitate further development of interventions, which remove barriers affecting adherence in asthma. While many theoretical frames have been proposed, this is the first application of Q-methodology to this problem. METHODS: A literature search, and interviews with clinicians and patients were used to create a concourse of reasons for non-adherence in asthma. The raw set of ideas in the concourse were defined, clarified and combined into more mean-