

institutionalized, U.S. civilian population were analyzed. MEPS data provided information on demographics, health conditions, prescription medications, and health resource utilization. Persons ≥ 45 years with COPD (ICD-9 = 491 [chronic bronchitis], ICD-9 = 492 [emphysema]) as their primary diagnosis were included. Direct medical costs were defined as the sum of insurance and patient payments for health services attributable to COPD. This included emergency department visits, hospital outpatient visits, inpatient stays, outpatient clinic and office visits, and prescription medications. Descriptive statistics were conducted. Results were weighted to reflect population estimates.

RESULTS: In 1996, 1.4 million people over 45 years of age received medical treatment for COPD. 65.7% of this cohort were 65 and older. Direct medical costs attributable to COPD totaled \$3.4 billion. COPD-associated direct medical costs for persons 65 and older were \$3.1 billion. 77% of the total medical costs in this group of patients were due to hospital admissions, 14.3% were for prescription medications, and 5.5% were for emergency room and hospital outpatient visits.

CONCLUSIONS: Inpatient admissions in the elderly accounted for the majority of the COPD-associated costs. Interventions designed to manage COPD more effectively, including appropriate utilization of prescription medications, may help minimize ER visits and hospital admissions, thereby decreasing total costs of managing COPD.

PAR8

COSTS AND BENEFITS ASSOCIATED WITH INITIATION OF FLUTICASONE VERSUS MONTELUKAST AS CONTROLLER THERAPY IN A MEDICAID ASTHMATIC POPULATION

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OBJECTIVES: Outcomes in asthmatic patients may vary depending on the controller medication used. Observational studies of outcomes of asthma therapy are needed to understand the implications of choice of controller in different populations. This study compared asthma-related health care costs and medication compliance between patients newly started on montelukast compared to low-dose fluticasone propionate as controller therapy in Medicaid-enrolled asthmatic patients previously using only short-acting beta-agonists.

METHODS: Using data from the North Carolina Medicaid program, we identified continuously enrolled asthmatic patients starting either fluticasone propionate 44 mg (FP 44), an inhaled corticosteroid, (n = 353) or montelukast 5 and 10 mg, an oral leukotriene modifier, (n = 525) in the year 1998. Patients were followed for 1-year pre and post controller initiation for health care service utilization, medication refill patterns, and costs. A mixed modeling procedure with indicator variables to

adjust for potential confounders was used to determine the adjusted cost impact of therapy initiation.

RESULTS: The average asthma-related health care costs were \$1199 (\$1180 for FP, \$1212 for montelukast) in Year 1. These costs increased to \$1342 (\$1235 for FP, \$1415 for montelukast) in Year 2. There were no significant differences in the adjusted asthma-related health care costs. In both groups, physician visits were significantly higher in Year 2 (50% increase for FP, 23% for montelukast, both $p < 0.01$). However, even after allowing for a wider compliance range for FP (50–150%) compared to montelukast (80–120%), we found montelukast users to be more compliant with therapy in Year 2 (RR: 1.97; 95% CI: 1.25, 3.13).

CONCLUSIONS: Although there were no cost or health care utilization differences between the two groups in the post-controller initiation year, montelukast use was associated with significantly better treatment compliance than FP use, which could have significant implications for long-term patient outcomes and costs in Medicaid-enrolled asthmatic patients.

PAR9

COSTS AND BENEFITS ASSOCIATED WITH ADDITION OF SALMETEROL VERSUS MONTELUKAST TO INHALED CORTICOSTEROID THERAPY IN A MEDICAID ASTHMATIC POPULATION

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OBJECTIVES: Asthma controller therapy with multiple controller medications is increasingly common. Data is needed regarding the implications of the choice for a second controller medication. The goal of this study was to compare asthma-related health care costs and medication compliance between patients newly started on montelukast compared to salmeterol as additional controller therapy among patients already using inhaled corticosteroids (ICS).

METHODS: Using data from the North Carolina Medicaid program, we identified continuously enrolled asthmatic patients using ICS as controller therapy (≥ 4 refills in year before starting additional controller) initiating either salmeterol a long-acting beta agonist, (n = 97) or montelukast, an oral leukotriene modifier, (n = 101) in the year 1998. Each group was observed for 1-year pre and post additional controller medication initiation for health care service utilization, medication refill patterns, and costs. A mixed modeling procedure using indicator variables was used to determine confounder controlled cost impact of therapy initiation.

RESULTS: The average asthma-related health care costs were \$1955 (\$2225 for salmeterol, \$1695 for montelukast) in year 1. These average costs did not significantly increase for either group (\$2055 entire population,

\$2205 for salmeterol, \$1911 for montelukast) in year 2. There were no significant differences in the adjusted asthma-related health care costs and utilization. Although the montelukast group showed higher compliance in the bivariate analysis, this was not significant in the multivariate regression. Overall ICS use decreased by 16% in year 2 ($p < 0.01$), but there were no differences between the two groups with regard to relative reduction of ICS refills.

CONCLUSIONS: Adding either montelukast or salmeterol as additional controller to ICS therapy was not associated with changes in either health care service utilization or costs in Medicaid-enrolled asthmatic patients. However, their addition was associated with a decrease in inhaled corticosteroid use, suggesting decreased compliance in patients on the 2-drug regimen.

PAR 10

RESOURCE UTILIZATION FOR INPATIENT ASTHMA CARE IN CHILDREN AND ADULTS: AN ANALYSIS OF HCUP DATA

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OBJECTIVES: To estimate differences in length of stay (LOS), emergency room (ER) visits and charges for inpatient asthma care between children and adults based on insurance coverage, patient and hospital-based characteristics.

METHODS: The 1997 Nationwide Inpatient Sample of the Healthcare Cost and Utilization Project data were used to extract 183,400 childhood (age <17 years) and 251,760 adult asthma cases (primary diagnosis using ICD-9 codes 493.00–493.91). Two-way ANOVA was conducted to determine differences in LOS and total charges between adult and childhood asthma based on type of insurance coverage (Medicaid, private insurance/HMO and self-pay) while chi-square analysis was conducted to detect differences based on number of ER visits. Regression models were developed separately for childhood and adult asthma to examine if LOS and total charges (multiple regression) and ER visits (logistic regression) are affected by patient-related (race, gender, number of co-morbidities and insurance status) and hospital-related (bed-size, location, teaching and ownership status) factors.

RESULTS: Overall, average length of stay for childhood and adult asthma was 2.43 days and 3.98 days, respectively. Mean total charges for childhood asthma was \$4,532 as compared to \$7,713 for adult asthma. Almost 70% of adult asthmatics had ER visits as compared to 62% of asthmatic children. Adults had significantly higher total charges, LOS and ER visits for all types of payers as compared to children. Medicaid-eligible adults and children showed highest hospitalization charges, LOS and ER visits. Non-whites, patients with higher number of co-morbidities, urban and teaching hospitals were

associated with higher charges, LOS and ER visits, for both adult and childhood asthma.

CONCLUSIONS: Adult asthmatics, especially Medicaid beneficiaries, have higher inpatient charges, LOS and ER visits as compared to asthmatic children. Future studies should be aimed at reducing asthma-related ER visits and investigating variations in resource utilization based on insurance coverage and patient and hospital-related characteristics.

PAR 11

COST-UTILITY ANALYSIS OF MIDDLE SEVERE ASTHMA WITH SODIUM CROMOGLYCATE AND SODIUM NEDOCROMIL

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OBJECTIVES: Comparative estimation cost and influence on quality of life in children with middle severe asthma sodium cromoglycate and sodium nedocromil.

METHODS: Cost-utility analysis was conducted in Child's Municipal Asthma-Centre during 1998–2000 years in 100 children with asthma. We determined one year expenses for quality adjusted life years (QALY). For estimation quality of life we used "Childhood questionnaire" by A. West, D. French adapted for Russian by V. Petrov and I. Smolenov and index Rosser-Kind. Estimation of expenditures included direct and indirect expenses.

RESULTS: The investigation revealed the differences in therapeutic effectiveness and quality of life depending on treatment method. Using therapy by nedocromil sodium during one year, the total sum of positive effect on quality of children's life was 149,8%; health index 0,985 and expenses on drug—3672,3 ± 40,4 roubles. Using sodium cromoglycate these indices were 70,9%; 0,965 and 1862,4 ± 24,2 roubles accordingly. Annual cost of middle severe asthma for one child was 5051,4 ± 68,6 roubles using sodium nedocromil (72,7% expenditures formed expenses on the drug); using sodium cromoglycate—5044,7 ± 110,4 roubles (36,92%) accordingly. In the second case expenses on QALY were much more—5207,65 in consequence of expenses on hospital care and additional therapy.

CONCLUSIONS: Therapy by sodium cromoglycate of middle severe asthma didn't provide complete disease control. In this case necessity in additional therapy for improvement quality of life is increased.

PAR 12

ESTIMATES OF THE COST OF ASTHMA IN A EMPLOYER POPULATION

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