Asthma patients that reported occurrences of at least one asthma attack in twelve months. Multiple logistic regression was used to determine what factors are associated with the risk of absent controller drug therapy despite the frequent use of quick relief drugs, i.e., zero use of controllers in 12 months despite the use of 3 or more quick relief canisters in three months. RESULTS: A total of 1164 patients reported at least one asthma attack in past 12 months. Among these patients, 434 (37%) reported no use of controller drugs despite the frequent use of quick relief canisters. The patients that did not have peak flow meter at home were more likely to report no use of controller drugs despite the frequent use of quick relief drugs (OR = 1.93; 95% CI:1.92, 1.93). Health insurance (OR = 1.44; 95% CI: 1.43, 1.45) and prescription drug benefits (OR = 1.21; 95% CI: 1.21, 1.21) also increased the risk of absent controller drug therapy. CONCLUSION: Having peak flow meter increased the likelihood of controller drug use indicating the usefulness of peak flow meter in asthma treatment and management. Health insurance and prescription drug benefit improved the likelihood of using controller drugs because of improved access. In order to improve the controller drug utilization amongst asthma patients, attention should be focused on patients lacking health insurance, prescription drug benefits and peak flow meters.

**PR541**

**AVAILABILITY AND PRICE OF TWO INHALATION MEDICINES FOR TREATMENT OF ASTHMA IN DIFFERENT STATES OF INDIA**

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OBJECTIVE: Rational treatment of bronchial asthma is a serious problem in developing countries mainly because of access to medicines. This paper reports the availability and price of two inhalers in different states of India. METHODS: The data collected for essential medicines at five sites utilizing a standardized methodology on medicine prices and availability was used to collate data for secondary analysis. The surveys were conducted in public (20–60) and private (20–60) facilities. Anti-asthma medicines, beclomethasone (50μg/dose) and salbutamol (0.1 mg/dose) inhalers represented both as innovator brand (IB) and generic equivalent, were included in the analysis. Medicine prices were expressed as median price ratio (MPR) to an international reference price. The surveys were conducted in four states, Haryana, Karnataka, Maharashtra, Rajasthan and Chennai, capital TamilNadu, state. Surveys were conducted from October–December 2004 except Rajasthan survey (April–June 2003). RESULTS: Public sector: Availability—Generic version of both the inhalers was found only in the Rajasthan state. Availability of beclomethasone inhaler was 25% and 30% for salbutamol. Procurement price—Beclomethasone inhaler was 0.74 and salbutamol inhaler was 0.56 times the international reference price. Private sector: Availability—Beclomethasone inhaler was available as innovator brand (53%) and generic version (90%) in Chennai. In other states only generic version was available, in the range of 10% to 65%. Salbutamol inhaler was available in all states and in both the versions, availability ranging between 20%–95% as innovator brand and 83 –100% as generic equivalent. Price—MPR for generic beclomethasone was in the range of 0.87–1.49 at all sites, IB was available in Chennai and the MPR was 1.08. MPRs for IB and generic salbutamol range between 0.86–1.12 and 0.82–0.96 respectively. CONCLUSION: Policy interventions are required to improve access of affordable essential asthma medicines. Asthma needs to be recognized as a health priority chronic disease in India.

**PR542**

**ASTHMA DISEASE BURDEN, EVIDENTIAL REQUIREMENTS, AND FORMULARY CONSIDERATIONS AMONG MANAGED CARE AND EMPLOYER DECISION MAKERS REGARDING INHALED CORTICOSTEROIDS (ICS)**

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OBJECTIVE: To gather information from managed care organization (MCO) decision makers and employers about asthma burden, evidentiary requirements, and product attributes that may influence formulary decision making for an emerging once-daily ICS asthma therapy. METHODS: Telephone interviews were conducted among 10 MCO decision makers and 8 employers representing more than 51 million covered lives. Research focused on asthma burden, disease management strategies, and formulary decision making. Mean ratings on a scale from 1 (no effect; not at all important) to 10 (very large effect; very important). RESULTS: Both MCOs and employers recognized the prevalence of asthma and challenges associated with management, including patient compliance with ICS. MCOs reported the economic impact of asthma was most notable in terms of hospitalizations (7.3), emergency department visits (7.2), and pharmaceutical costs (7.0). Employers identified burden of illness with employee absenteeism (6.0), presenteeism (5.3), workplace productivity (5.4), and employer health care costs stemming from both employee asthma and dependent children with asthma (5.3). ICS product efficacy, safety, compliance, and cost-effectiveness/value were the most important product attributes driving formulary decision making among MCOs. Both MCOs and employers had a favorable overall opinion of the product (6.9 and 6.8, respectively) and felt that compliance (8.4 and 8.9, respectively) would have a considerable impact on decision making. Majority of MCOs (7 of 10) reported once-daily dosing to be the most important product attribute (6.9). MCO interviewees emphasized that the product will need to be priced competitively to secure favorable positioning in a crowded ICS market. Post-launch evidentiary requirements may include the need for “real world” head-to-head comparative effectiveness studies. CONCLUSION: Efficacy, safety, compliance, and cost are primary factors driving formulary decision making when evaluating emerging ICS asthma therapies in a crowded market. MCO and employer organizations have similar priorities with respect to asthma management and formulary decision making.

**PR543**

**ECONOMIC BURDEN OF ASTHMA AMONG CHILDREN IN THE UNITED STATES**

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OBJECTIVE: Recent estimates of cost of asthma among children in the USA are not available. The objective of this study was to estimate the incremental direct medical expenditures of treating asthma among children in the USA. METHODS: Retrospective analysis was conducted using the 2004 Medical Expenditure Panel Survey (MEPS) data. Asthmatic children (age < 18 years; n = 968) were identified as those with International Classification of Diseases (ICD)-9 diagnosis codes for asthma or those that had a self-report of having asthma in 2004. Separate regression models were developed for total expenditures and expenditures for various categories of resource use adjusting for age, gender, race, ethnicity, education, geographic region, insurance status and number of medications
used (proxy for comorbidity). 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 children in 2004 was estimated at 9.09%, i.e., 6.7 million persons (95% CI: 8.27% to 9.99%) in the U.S. A majority of children with asthma were male (61.6%), white (68.1%), and insured (95.2%) with mean age of 8.9 ± 0.25 years and education of 2.4 ± 0.17 years. Children with asthma had 69% higher total expenditures than non-asthmatics after controlling for covariates (RR: 1.69; p < 0.0001). The annual adjusted mean incremental total expenditure associated with asthma was $661.7 (SE: $159.3; p < 0.0001) per person. Medications accounted for the largest proportion of the total expenditures estimated at $197.9 (SE: $28.8; p < 0.0001), followed by physician office visits at $162.3 (SE: $57.7; p = 0.005) and inpatient visits at $105.0 (SE: $75.9; p = 0.0167). CONCLUSION: Given the prevalence of asthma in children and its associated incremental expenditures, the annual direct medical expenditure for treating asthma in children is estimated at approximately $4.4 billion in 2005 USD.

ANALYSIS OF THE COSTS RELATED TO SMOKING HABITS OF BENEFICIARIES OF A BRAZILIAN HEALTH PLAN, WITH THE PURPOSE TO DEFINE TREATMENT STRATEGIES TO REIMBURSE FIRST LINE MEDICATIONS

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OBJECTIVE: Cigarette smoking is one of the leading avoidable causes of death in the world. However, in many countries, such as Brazil, medications used during pharmacological treatments are not supported by private or public health systems. The purpose of this study is to analyze and to compare the financial impact of the costs related to adult smokers beneficiaries of a Brazilian health plan, with the estimate costs of treatments with anti-nicotine drugs and to the nicotine replacement therapies added to psychological support, applied to the group of smokers of the health plan and validated the model following the ISPOR Task Force recommendations. Three hypothetical scenarios were compared to standard-of-care that resulted in different target product profile and pricing bands: A) a 30% relative reduction in exacerbation rates with a $2000 per annum treatment cost; B) A plus a threefold increased risk of asthma related death for the suboptimally controlled; C) B plus an absolute improvement in utility by 0.02 for each health state. RESULTS: Simulation cohorts, stratified by age and severity, transitioned through three mutually exclusive levels of control until reaching death. Nine health states were modeled because one cycle of control history was predictive of present cost and utility. Compared to standard-of-care, the three hypothetical scenarios resulted in societal perspective incremental cost-effectiveness ratios of $284,000 per QALY gained (95% interval: $193,000, $463,000), $263,000/QALY (95% interval: $179,000, $422,000), and $62,000/QALY (95% interval: $52,000, $72,000) respectively. CONCLUSIONS: This policy model adds to past asthma models because its structure and inputs were based on current clinical guidelines and a large long-term patient-level registry. This versatile model can forecast: lifelong burden of disease, value of current and emerging interventions, and parameters that yield the highest return from further study.

HOW PROCESS INFLUENCES SCIENTIFIC EVIDENCE FOR HEALTH CARE POLICYMAKERS, THE CASE OF ECONOMICS AND MEDICAL DECISION-MAKING PROCESSES

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OBJECTIVE: This paper contributes to the debate on how process affects reliability of scientific evidence in health care. It discusses the use of different types of study designs in medicine and biology versus social sciences to raise scientific international evidence. METHODS: A comparison of study designs used in clinical research (RCT and bridges studies (e.g. Hsiao CF et als, 2007)) and in social sciences. Examples from clinical sciences are on environmental medicine and bridging studies. Examples from social sciences are presented on two characteristics of six European hypertensive patient surveys on cost of medicines (ENDEP-Lux, 2000): exemption criteria and classification of medicines for reimbursement. RESULTS: The comparison of case studies shows similar problems for both clinical and financing study designs: imbalance of sample sizes between new and original sites for clinical bridges studies, and between national sampled patients with different access to health benefits for financing.