OBJECTIVE: To examine determinates of asthma cost in a large employer population.

METHODS: Data was drawn from the MedStat database. Medstat is a claims-based database with over 5 million members. Individuals were identified as asthmatic based on either a hospitalization, emergency room (ER) or outpatient visit with a primary diagnosis of asthma. Final sample size was 107,432.

RESULTS: Overall mean expenditures for inpatient, outpatient and emergency room care were $417, the majority attributable to outpatient care ($270). Both ER visits (2.6% of the sample) and inpatient stays (2.5%) were relatively infrequent. But, among ER users, mean ER expenditures ($438) were greater than total mean expenditures for the typical asthmatic. Similarly, mean hospital expenditures for those using inpatient services were large ($5,316). ER visits were most likely for those aged 18–34 and became more infrequent with age. Conversely, hospital stays were least frequent for those 18–34 and otherwise showed no age trend. Although the frequency of inpatient events didn’t increase with age, the cost was positively correlated with age, with the lowest mean inpatient expenditures for the 18–34 age group ($98) and the highest for those age 65 and over ($355). Outpatient costs showed a similar trend, with the highest costs for those over 65 ($355) and the lowest for the 0–18 age group ($237). Overall costs in the over 65 age group ($589) were significantly greater than the lowest cost group, ages 18–34 ($379). Mean total costs for women ($446) were higher than for men ($379), largely due to higher outpatient costs. Women more frequently used inpatient services (2.7% versus 2.4%), but were less likely to use the ER (2.5% versus 2.9%).

CONCLUSIONS: Asthma is a high cost chronic illness in employer populations. Strategies to identify and manage high cost individuals may lead to cost savings.

THE COST OF ASTHMA IN CATALONIA: A DESCRIPTIVE AND MODELLING APPROACH

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OBJECTIVES: To develop a model of the cost of treatment of asthma for planning and evaluation purposes.

METHODS: The model is based on the five states classification of the GIA (Global Initiative on Asthma) A preliminary model was designed and validated by a group of expert clinicians, which defined also the current treatment patterns. On the basis of that information a template was designed for the collection of the following data: visits, in-patient stays, lab tests, drug treatments and clinical state. Retrospective data were collected for 3 and 5 years from 36 clinical records of 6 outpatient units of 6 Catalan hospitals. The cost at each state as well as the probabilities of transition between states was derived from the former data.

RESULTS: The average annual cost at 1997 prices is US$250. The distribution by resource category is: visits 33.5%, in-patient care 9.3%, lab tests 13.6% and drugs 43.6%. The cost in the first year is twice as much as the average of the following years. There are no significant differences in cost between pediatric and adult patients. The three years treatment cost does not seem to have increased over time between the patients starting treatment in 1996 and those starting in 1998. The initial simulation model gave an annual treatment cost of US$215, 250 and 285, respectively, for patients being in states one, two or three at the first visit.

CONCLUSIONS: The model reflects physicians understanding of the disease process and can be easily populated with data from clinical records. Given the limited size of the sample, transition probabilities were assumed to depend only from the previous state, but not from the state at the first visit or from other patient characteristics. These simplifying assumptions could and should be relaxed if data from a larger sample were available.
IVRS developed for this study provided an optimal method for collecting detailed analyzable-ready data without adding additional visits to the trial while providing subjects a convenient and user-friendly method of reporting.

**IMPACT OF ALLERGY AND ASTHMA BOTH SEPARATELY AND CONCOMITANTLY ON LOST HOURS FROM WORK**

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**OBJECTIVES:** The purpose of this study was to determine asthma and allergy disease burden among members of an employer directed health plans. Specifically, we were interested in understanding the impact on total lost days from work among members who have allergies only, asthma only, and both allergies and asthma.

**METHODS:** The study design was descriptive, cross-sectional, and used self-reported measures. All employees of participating employer groups were asked to complete a questionnaire and return it to a third party for processing and to assure confidentiality. We measured lost work hours by asking members about past month absenteeism, partial lost days, and lost productivity at work (presenteeism) on days when the condition was worse than normal.

**RESULTS:** Of 13,000 questionnaires sent, we received 4,295 for a 33% response rate. Forty-four percent (n = 1901) of responders reported having allergies only. The majority (85%) of persons with asthma also reported having allergies; 303 who had both allergies and asthma and 58 who had asthma only. Employees with asthma only reported the fewest average monthly missed hours from work, 8.5, while employees with allergies missed 15.8 hours. Employees with both allergies and asthma missed 29.2 hours during the past month. While the asthma sufferers accounted for fewer lost work hours compared to the other two groups, their lost hours were more likely due to time away from work whereas hours lost among employees with allergies were most likely due to decreased productivity.

**CONCLUSIONS:** The significant number of lost hours from work (due to absenteeism, partial missed days, or lost productivity) resulting from allergies and asthma represent a significant disease burden for employers and employees. Estimated annually, employees with asthma, allergies, and allergies/asthma cost employers $1,938, $3,602, and $6,658, respectively.

**ASTHMA & RESPIRATORY DISEASES/DISORDERS—Quality of Life Presentations**

**PAR15 CULTURAL ADAPTATION AND VALIDATION OF CHILDHOOD ASTHMA QUESTIONNAIRE VERSION B (CAQ-B) FOR SINGAPORE CHILDREN**

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HRQoL is an important outcome for chronic childhood diseases such as asthma. However, HRQoL measures are rarely used in young children in Asia due the difficulty of obtaining valid, reliable instruments that are developmental and cultural suitable. We adapt the Childhood Asthma Questionnaires (CAQ) previously used in UK and Australia for use in Singapore. These questionnaires have three versions for different age groups to take into account the developmental changes: CAQ-A (4–7 years), CAQ-B (7–11 years) and CAQ-C (11–16 years).

**OBJECTIVES:** To culturally adapt and validate a disease specific HRQoL questionnaire, CAQ-B for childhood asthma in Singapore.

**METHODS:** CAQ-B was adapted after pre-testing in asthmatic children. Changes to the UK and Australia versions were made to reflect the Singapore school systems, culture, language and climate. A cross-sectional validation was conducted. All asthmatic patients attending the Specialist Respiratory Clinic in KK Women’s and Children’s Hospital without other co-morbidities that significantly affect their HRQoL were invited to participate.

**RESULTS:** The adapted CAQ-B was validated in 96 patients (40 females and 56 males) with a mean age of 8.7 ± 1.1 years (range: 7–11 years). Most children have no difficulty understanding and completing the questionnaire. The median time to complete a questionnaire was 10 minutes. Internal consistency obtained was slightly lower than UK and Australia (Cronbach’s alpha = 0.29–0.76). However, this increased to comparable levels (Cronbach’s alpha = 0.57–0.76) when two items with confusing phrasing and one item on reading enjoyment were removed. The Passive Quality of Living Scale improved from 0.29 to 0.57 when the item regarding reading was eliminated.

**CONCLUSIONS:** Asthma Questionnaire (CAQ-B) is a simple and acceptable HRQoL to children and parents. The adapted version appeared to be reliable and valid. However, further investigation is needed to determine the internal structure of the scales by factor analysis.