meaningful. This equated to the change found following six-months of treatment.

**PSK7**

**USING DUAN’S SMEARING ESTIMATOR TO MEASURE COST OF CHRONIC HAND DERMATITIS (CHHD) IN A MASSACHUSETTS HEALTH MAINTENANCE ORGANIZATION (HMO)**

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**OBJECTIVES:** Monetary cost, positive values truncated at zero, violates normality assumption when used as the dependent variable in ordinary least squares (OLS) regressions. Log transformation of cost removes the skewness, but the resulting coefficients are not directly interpretable as raw dollars. Simply taking exponent of fitted regression coefficients causes retransformation bias. Duan’s nonparametric smearing estimator factors into the mean of the anti-log of the residuals, thus correcting retransformation bias. The goal of this analysis is to apply Duan’s smearing technique to retransform logged costs to evaluate the incremental cost of CHHD using claims data from an HMO.

**METHODS:** A 13-item self-assessment questionnaire identifying CHHD and its severity was developed, validated, and mailed to 1,380 randomly selected members of a Massachusetts HMO. Average monthly costs for questionnaire respondents were calculated by the sum of approved and co-payment amounts from claims filed between April 1, 2001–December 31, 2003 divided by months of observation. OLS regression of logarithm of cost was used, with covariates consisting of a CHHD dummy, and demographic and co-morbid factors. Using Duan’s estimator, average monthly incremental cost of CHHD was calculated by multiplying percentage cost increase for CHHD from the OLS regression by predicted average monthly cost for Non-CHHD patients (which is the average cost after removing the effect of the CHHD dummy). **RESULTS:** 140 of 507 questionnaire respondents were identified as CHHD. Univariate comparison showed no statistical difference in monthly cost between the CHHD and Non-CHHD groups (Non-CHHD, $326.98 ± 79.32, CHHD $270.87 ± 23.59, p = 0.1383). A skewness and kurtosis test rejected normality. However, multivariate analysis showed that CHHD patients had a statistically significant monthly cost increase of 25.2% (±2.5%) compared to Non-CHHD (p < 0.001), amounting to an average monthly incremental cost of CHHD of $70.69 (±$7.00) per patient. **CONCLUSIONS:** Duan’s smearing estimator may be valid for inferring incremental cost in OLS regression models of logarithm of cost.

**PSK8**

**IMPACT OF ATOPIC DERMATITIS ON THE QUALITY-OF-LIFE OF PARENTS OF CHILDREN WITH ATOPIC DERMATITIS**

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**OBJECTIVES:** Atopic dermatitis (AD) is a common childhood chronic skin condition. Despite high disease prevalence, up to 20% in some populations, little information is available regarding the burden of disease to children and parent/caregivers. An objective of this study was to assess the impact of AD on parents’/caregivers’ quality-of-life. **METHODS:** In total, 414 AD patients, between 2–12 years old were identified through a retrospective review of outpatient billing records from January, 2001 to December, 2004 from two large physician practices and were contacted to enroll in the study. Data collected included patient demographics, comorbidities, treatments, and health care resource use. Parents also completed the Parent’s Index of Quality of Life–Atopic Dermatitis (PIQoL-AD), a 28-item, validated questionnaire evaluating parents’ needs-based quality-of-life. Total PIQoL-AD scores can range from zero to 28, with a higher score indicating greater impaired quality-of-life. One-way analysis of variance was used to determine statistical significance. **RESULTS:** Mean patient age was 6.7 (SD ± 3.3) years and 55% of patients were males. Mean duration and treatment of illness were 3.0 ± 2.2 years and 20.7 ± 21.4 months, respectively. Parents’ assessment of disease severity indicated that 82% of patients had mild AD and 13% of patients had moderate AD. Patients reporting at least one flare experienced 2.8 ± 2.3 flares per month; mean duration of flares was 5.2 ± 7.0 days. Disease flares negatively impacted parents’ quality-of-life. PIQoL-AD scores worsened among those parents whose child had disease flares. Mean PIQoL-AD scores were statistically significantly higher (5.9 ± 5.4 vs. 3.0 ± 3.6, p < 0.0001) for those parents whose child had disease flares compared to those who did not have disease flares. **CONCLUSIONS:** Study findings will improve our understanding of the impact of AD on children and their parents/caregivers and may enhance treatment effects, clinical outcomes, and patient and parent/caregiver education. Further investigation is needed to understand the impact of atopic dermatitis on parents’ quality-of-life.

**PSK9**

**PREVALENCE OF CHRONIC HAND DERMATITIS AND ITS IMPACT ON PATIENT-REPORTED OUTCOMES IN A MANAGED CARE POPULATION**

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**OBJECTIVES:** The prevalence of chronic hand dermatitis (CHD) and its impact on patient-reported outcomes, including quality of life (QoL), work and activity impairment, were evaluated in a managed care organization (MCO). To date, few studies have investigated CHD using a general population-based approach. **METHODS:** A validated cross-sectional patient-reported survey was mailed to 1380 members of a Massachusetts MCO. The survey consisted of: a 13-item clinical questionnaire identifying CHD based on signs and symptoms of dermatitis related to hands, treatment response, and diagnoses of exclusion; the Skindex-29, a 29-question dermatology-specific QoL instrument; and the Work Productivity and Activity Impairment (WPAI) instrument validated for CHD. Those receiving the survey were randomly sampled from the general MCO population and a subset population with ≥2 medical claims with a dermatitis or eczema diagnosis (ICD-9 692 or 691.8). CHD patients were compared to patients with other skin conditions and to Non-CHD patients to assess their relative QoL and WPAI measures, respectively. **RESULTS:** Based on the survey respondents (36.7% response rate), the prevalence of CHD was 17.5% in the MCO general population, a rate much higher than previously found (2–12%). QoL and WPAI measures for the CHD patients were significantly worse than those for their comparison groups (Skindex score: CHD = 30.33 ± 17.31, Other Skin Conditions = 20.05 ± 16.68; Work Impairment: CHD = 29.33%, Non-CHD = 6.85%; Activity Impairment: CHD = 33.78%, Non-CHD = 17.32%; all p < 0.0001).
**Abstracts**

**CONCLUSIONS:** Given that ChHD affects almost one in five MCO members, its negative impact on members’ QoL, work and activity impairment measures is significant and should be considered by MCOs and employers.

**THE NEGATIVE IMPACT OF PSORIASIS ON WORK PRODUCTIVITY**

**OBJECTIVES:** Psoriasis is a common disease with profound impact on many facets of life; there is physical impairment as well as reductions in quality of life defined by psychological, social, sexual and financial parameters. Work productivity, another important component of patients’ overall well-being, has also been reported to be impacted by psoriasis. The objective of this study was to determine whether there exists a relationship between clinical severity of psoriasis and work productivity.

**METHODS:** To quantify the impact of psoriasis on work productivity, 90 patients were surveyed in a clinic setting. Three severity groups were created based on Psoriasis Area and Severity Index (PASI) scores: mild (≤10, moderate = 10–20, and severe ≥20). Work impairment was measured using the Work Productivity Assessment Index (WPAI); physical and mental health statuses were assessed using the SF-8; Anxiety/Depression was assessed using the HADS; other health and employment information were also collected.

**RESULTS:** One-third of all subjects were unemployed at the time of the study with 16.7% of these subjects (5.5% of all 90 subjects) reporting that they were unemployed because of their psoriasis. A greater percentage of patients in the moderate and severe groups attributed their unemployment to psoriasis (33% for each), compared with the mild group (9.5%). There was a trend toward increasing impairment while at work with increasing psoriasis severity (severe 24.4%, moderate 17.7% and mild 13.5%). With respect to the percent with activity impairment, there was a statistically significant difference between the severe group (42%) and the mild group (20.2%) [all p < 0.05].

**CONCLUSIONS:** Psoriasis is associated with work productivity impairment, and the degree of work impact, missed work, physical and mental health condition and anxiety/depression status tends to be greater in patients with more severe skin involvement. These findings support the need for aggressive but appropriate treatment of moderate-to-severe psoriasis.

**SMOKING**

**DEVELOPING MARKOV-MODEL INCLUDING TOBACCO-ASSOCIATED DISEASES TO EVALUATE SMOKING CESSATION THERAPY IN JAPAN**

**OBJECTIVES:** To develop Markov-model, including various tobacco-associated diseases to evaluate effects of nicotine-replacement therapy (NRT) and smoking cessation guidance therapy.

**METHODS:** To identify various tobacco-associated diseases and markov transition probabilities, we organized a committee including expert physicians. With expert interview, we developed a Markov-model.

**RESULTS:** We identified 19 tobacco-associated diseases as major results of smoking, according to “Health Risk Appraisal”. The 19 diseases are as follows; 10 cancers—opharyngeal cancer, esophageal cancer, gastric cancer, hepatic cancer, rectal cancer, pancreatic cancer, lung cancer, cervical cancer, renal cancer and bladder cancer; 4 cardiovascular diseases—hypertensive heart disease, ischemic heart disease, aneurysm and apoplexy; and 5 other diseases—pneumonia, chronic bronchitis, asthma, gastric ulcer and cirrhosis. Tobacco is thought to increase incidence rate of those 19 diseases. We constructed four node Markov model, “Success (of smoking cessation)” “Failure” “Death” and “Sick”. “Sick” node consists of 19 diseases. We also considered a combination of major diseases. In order to avoid many branches, we settled the transition probabilities of diseases as a cumulative function of incidence of each disease. The main assumptions are as follows; 1) Only one disease occurs during each cycle; 2) The risk of each disease increases as cumulative tobacco consumption increases; and 3) Smoking affects the incidence rate of the 19 diseases but does not affect mortality rate from those diseases. One cycle in Markov chain is set to 5 year. For future cost-effectiveness analysis of smoking cessation therapy, we set cost as well as transition probability on each branch.

**CONCLUSIONS:** We developed Markov-model, including various tobacco-associated disease. In the future, we will take cost-effectiveness analysis to evaluate smoking cessation therapy using this model.