years—from the statutory health insurance (SHI), family and societal perspectives— the number of AD cases, the direct medical, non-medical, and productivity loss costs, and quality adjusted life-year (QALY) in infant receiving each formula type for 4 months. The model included the following health states: disease free, mild, moderate, and severe AD, and death. Efficacy estimates were based on the German Infant Nutritional Intervention trial. Outcomes were discounted at 3% and reported as cost per QALY gained and per avoided cases of AD. Extensive deterministic and probabilistic sensitivity analyses (SA) were performed. **RESULTS:** In the base case, pHF-W resulted in 0.016 (95% CI: 0.0066; 0.0249) QALY gained and 0.14 AD cases avoided per patients relative to SF, with corresponding estimated incremental saving (SHI perspective) of €70.14 (95%CI: €16.26; €145.94;) per patient. pHF-W resulted in 0.006 (95% CI: 0.0004; 0.0149) QALY gained and 0.04 AD cases avoided per patients relative to eHF-W, with corresponding estimated incremental saving (SHI perspective) of €424 (95%CI: €106.94; €848.26) per patient. Univariate SA revealed that incremental QALYS and costs were most sensitive to changes in the relative risk of developing AD up to one year when PHF is compared to SF and reimbursement rates of formula for prevention. **CONCLUSIONS:** AD prevention with pHF-W is a cost-effective strategy compared to SF and eHF-W.

PRS31

COST-EFFECTIVENESS OF AN INTENSIVE INTERVENTION PROGRAM IN THE CONTROL OF ALLERGIC RHINITIS DUE TO RAGWEED POLLEN IN QUEBEC, CANADA

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OBJECTIVES: Allergic rhinitis due to ragweed pollen is characterized by rhinorrhea, itching, and nasal congestion. Methods of ragweed control, such as cutting and mowing, are important to reduce the atmospheric concentration of pollen, thus reducing the severity of AR symptoms and improving patients' quality of life. The aim of this study was to assess the economic impact of an intensive concerted intervention mode (CIM) compared to a minimal intervention mode (MIM) in a Quebec provincial context. **METHODS:** A cost-utility analysis was performed according to a societal perspective. A time horizon of one month was chosen, which correspond to the symptomatic period of AR due to ragweed pollen. CIM and MIM were applied in two comparable cities from Quebec. The target population was composed of people living in both cities, with a focus on patients suffering from AR related to ragweed pollen. Clinical data were obtained from the Rhinoconjunctivitis Quality of Life Questionnaire (RQLQ) and were converted into utility values using the method proposed by Keiding and Jorgenson. Costs considered in this economic evaluation were those necessary for the mobilization and sensitization of community sectors, equipment, and additional typical methods of ragweed control. **RESULTS:** RQLQ scores were obtained from 227 patients (106 for CIM and 121 for MIM). For the population where the CIM was adopted, total cost of interventions was CDN$60,603 and a gain of 10.15 QALYs was estimated. In the city with the MIM, there were no additional costs and a decrease of 0.40 QALY was observed. The incremental cost-utility ratio was estimated at CDN$5744/QALY. **CONCLUSIONS:** This economic evaluation demonstrates that a CIM is a cost-effective strategy compared to a MIM. Results of this study support the adoption of intensive intervention programs in the control of AR due to ragweed pollen.

PRS32

ALLERGY PATIENTS TREATED WITH IMMUNOTHERAPY EXPERIENCE INCREASED QUALITY OF LIFE AND FEWER SICK DAYS AFTER ONE YEAR

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OBJECTIVES: To assess the effect of subcutaneous-allergen-specific-immunotherapy (SCIT) on disease severity classifications, number of days affected and sick days per year on patients with grass-pollen and/or house dust mite (HDM) induced allergic rhino-conjunctivitis (RC) and/or asthma (A). **METHODS:** A total of 248 patients started SCIT; an intension to treat approach was applied. The disease specific Rhino-conjunctivitis Quality of Life Questionnaire (RQLQ) and the two generic health-related quality of life (HRQoL) instruments 15D and EQ-5D were used. The outcome measures included change in; disease severity classifications, RQLQ-scores, number of days with symptoms, number of sick days, change in generic HRQoL and Quality-Adjusted-Life-Years (QALY). **RESULTS:** The disease severity classifications showed significantly improved disease control. Mean RQLQ-score was reduced from 3.02 at baseline to 2.00 at follow-up. Average annual days with symptoms were reduced from 189 days to 145 days whilst annual sick days were reduced from 3.7 to 1.2 days. The 15D-score increased from 0.83 to 0.86 and the EQ-5D-score from 0.70 to 0.77, which indicated an annual gain per patient of 0.03-0.06 QALY. **CONCLUSIONS:** Allergic patients suffering from RC alone or RC and A experience significantly increased HRQoL, when treated with SCIT for one year.

RESPIRATORY-RELATED DISORDERS - Patient-Reported Outcomes & Patient Preference Studies

PRS33

FACTORS AFFECTING ADHERENCE TO COPD THERAPY IN 5EU

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OBJECTIVES: To examine correlates of non-adherence to drug therapy among COPD patients in 5EU. **METHODS:** The study included data from the 2011 5EU (N=57,512) National Health and Wellness Survey, a survey representative of the adult populations in France, Germany, Italy, Spain, and UK. Patients self-reported physician diagnosis of COPD, chronic bronchitis, or emphysema and indicated they were currently taking a prescription regimen for their condition. Adherence was measured using the Morisky Adherence Scale. T-tests and chi-square tests were used to assess differences between adherent and non-adherent patients. A binary logistic regression model was used to determine patient characteristics independently associated with non-adherence. Sex, age, smoking, alcohol use, Charlson Comorbidity Index (CCI), out of pocket costs for prescriptions, use of cost saving strategies (CSS), self-reported COPD severity, employment, income, number of comorbid conditions, and country were included as predictors. **RESULTS:** Of 1,263 respondents using a COPD medication, 30% (n=375) reported at least one non-adherent behavior. Bivariate comparisons revealed that non-adherent patients were more likely to smoke and use CSS than adherent patients (49% vs. 36% and 48% vs. 32%, respectively; ps<0.001). Adherent patients were also older (57.9 vs. 52.3) and experienced more severe COPD (17% vs. 9%; ps<0.001). In the regression model, age (OR: 1.02, 95% CI: 1.01, 1.03) and severe COPD (OR: 1.90, 95% CI: 1.21, 2.99) were positively associated with adherence (ps<0.01), while smoking (OR: 0.66, 95% CI: 0.51, 0.86) and use of CSS (OR: 0.61, 95% CI: 0.46, 0.81) had negative associations (ps<0.01). No other variables in the model were associated with adherence. **CONCLUSIONS:** In 5EU, advanced age and severe COPD are associated with increased adherence, while smoking and CSS with are associated with decreased adherence. Physicians need to target their younger, less severe COPD patients to encourage greater adherence to therapy.

PRS34

AUSTRALIAN NEW TO THERAPY PROGRAM IMPROVES TIOTROPIUM (SPIRIVA) PERSISTENCE AND COMPLIANCE

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OBJECTIVES: To assess the impact of the community pharmacy Spiriva New To Therapy (SNTT) compliance program on adherence and persistence. **METHODS:** Patients presenting at participating community pharmacies with their first script for tiotropium were invited to participate in a pharmacist intervention involving two 10 minute protocol based coaching sessions, one month apart. Records were extracted of tiotropium scripts dispensed for all patients enrolled in the SNTT program over the following 12 months. Adherence was assessed by MPR over the first 6 months. Patients were considered to have ceased tiotropium if there was a three month gap in dispensed scripts. Time to cessation of tiotropium treatment was assessed using the Kaplan-Meier method. The SNTT program was compared with persistence curves derived from a 10% random sample of tiotropium patients using the Australian prescription claims database (SPBS). **RESULTS:** A total of 246 patients enrolled in the SNNT program; 48% completed Session #1, while 52% completed both Sessions. Over the first 6 months, SNTT program patients collected 5.2 tiotropium scripts indicating satisfactory adherence (MPR = 87% vs 55%); 2% of SNTT patients ceased tiotropium after the first prescription (SPBS=37%), while just 38% (63%) had stopped after 10 months. Persistence by patients completing two sessions was slightly better than those completing one. **CONCLUSIONS:** A pharmacist intervention involving two short protocol based coaching sessions significantly reduced the early cessation of tiotropium. A total of 35% to 40% more SNTT program patients were persistent than the Australian SPBS population at 3-6 months. MPR was significantly improved.

PRS35

THE ECONOMIC BURDEN OF HAE: FINDINGS FROM THE HAE BURDEN OF ILLNESS STUDY IN EUROPE (HAE-BOIS-EUROPE)

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OBJECTIVES: Hereditary angioedema due to C1 inhibitor deficiency (HAE) is a rare but serious disease marked by swelling attacks in various areas of the body. The HAE Burden of Illness Study-Europe (HAE-BOIS-Europe) addresses the gaps in our knowledge of the humanistic and economic impact of HAE in Europe. We report the economic results. **METHODS:** This cross-sectional study was conducted in Spain (ES), Denmark (DK), and Germany (DE), and was open to patients aged ≥12 years, with a diagnosis of HAE-I or HAE-II. Data collection included a survey on individuals' direct and indirect resource utilization, and the impact of HAE on work, school and other activities. **RESULTS:** A total of 186 patients participated. From 84-100% across countries reported having medication at home to treat attacks, although 48%, 25%, and 23% in ES, DK, and DE, respectively, still received care at a treatment facility or saw a physician for their most recent attack; 21%, 18%, and 0%, respectively, visited an emergency department. On a 0.0-10.0 (higher worse) rating scale of the impact of the attack on ability to perform daily activities, patients reported a mean score of 5.0; this did not vary significantly by site of attack. Overall, 24% of patients missed time from work/school during the most recent attack, missing a mean of 2.9 days, and 29% missed time from work/school between attacks over the past 6 months, missing a median of 2.0 days. Overall, 59% required carer help over the past 6 months, with a corresponding detriment to the carers' work and/or leisure time. Overall, 48% of patients reported that HAE has hindered their career and/or educational advancement. **CONCLUSIONS:** The HAE-BOIS-Europe survey has highlighted the substantial economic burden of HAE, which encompasses

medical resource use, impact on productivity for both patients and carers, and detrimental effects on education and careers.

PRS36
CONTENT VALIDITY OF TWO SYMPTOM QUESTIONNAIRES FOR IDIOPATHIC PULMONARY FIBROSIS
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OBJECTIVES: Idiopathic Pulmonary Fibrosis (IPF) is a rare, irreversible and eventually fatal fibrosing lung disease. Cough and dyspnea are major symptoms. The study objective was to assess the content validity of the Cough and Sputum Assessment Questionnaire (CASA-Q) cough domains and the UCSD Shortness of Breath Questionnaire (SOBQ), instruments developed for use in chronic obstructive pulmonary disease, when used in patients with IPF. **METHODS:** Cross-sectional, qualitative study with cognitive interviews in patients with IPF. Study outcomes included relevance, comprehension of item meaning, understanding of the instructions, recall period, response options, and concept saturation. **RESULTS:** Interviews were conducted with 18 patients. The mean age was 68.9 years (SD 11.9), 78% were male and 89% were Caucasian. The mean time since IPF diagnosis was 2.4 years (SD 1.6). Most participants (89%) found the CASA-Q cough domain items to be highly relevant to their condition. The intended meaning of the items was clearly understood by most of the participants (89-100%). All participants understood the CASA-Q instructions; the correct recall period was reported by 89% of the patients, and the response options were understood by 76%. Most participants (83%) reported positive feedback for the SOBQ; those who did not were symptom free and hence had no limitation in activities to report. The intended meanings of the items were relevant and clearly understood by all participants. Participants understood the instructions (83%) and all patients understood the response options. The recall period produced varying responses, based on the type of activity performed. No concepts were missing, suggesting that saturation was demonstrated for both measures. **CONCLUSIONS:** Content validity and saturation for the CASA-Q cough domain and SOBQ was established with items perceived as relevant to measure symptoms of IPF. The results of this study support the use of these instruments in IPF clinical trials.

PRS37
QUALITY OF LIFE IN PAEDIATRIC ASTHMA FROM PATIENT AND THEIR PARENTS PERSPECTIVE
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OBJECTIVES: To evaluate disease-specific quality of life (QoL) in children with asthma according to patients' and their parents' perspective. **METHODS:** Hungarian version of the *Standardised Paediatric Asthma Quality of Life Questionnaire* ($PAQLQ_{(s)}$) and the *Paediatric Asthma Caregiver's Quality of Life Questionnaire* (PACQLQ) were completed. The minimal important difference in the PAQLQ total score is 0.5 on the 7-point Likert scale, higher scores indicate better QoL. Asthma control was assessed by *Asthma Control Questionnaire* (ACQ); Forced Expiratory Volume in 1 second (FEV1) was measured via spirometry. **RESULTS:** A total of 125 children (7-17 years of age) and their caregivers completed the questionnaires. Overall PAQLQ score was 5.74+0.97, overall PACQLQ score was 5.32+1.22 (r=0.83), mean ACQ score was 1.65+0.8 and mean FEV_1 was 100.71+14.91. PACQLQ scores were statistically (p=0.001) and clinically significantly lower, than PAQLQ scores. Correlations between FEV_1 and overall score of $PAQLQ_{(s)}$ (r=-0.15) and overall PACQLQ score (r=-0.005) were weak and not significant. The association between ACQ and total score of $PAQLQ_{(s)}$(r=-0.64, p=0.01) was moderate. **CONCLUSIONS:** Our participants had poor asthma control despite their good lung function. Weak relationship was found between spirometry and QoL according to patients' and caregivers' opinion; however QoL correlated only moderately with the level of asthma control. PAQLQ is able to detect small but clinically important changes that children experience as a result of the treatment or as a part of the natural fluctuation of their asthma, it provides additional valuable information for clinical practice; children aged over 7 can provide reliable data on their Qol, where as parents often do not rate their children's Qol appropriately.

PRS38
TURKISH CULTURAL ADAPTATION AND VALIDATION OF SMOKING CESSATION QUALITY OF LIFE (SCQOL) QUESTIONNAIRE
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OBJECTIVES: The Smoking Cessation Quality of Life (SCQoL) questionnaire assesses the change in well-being and functioning associated with smoking cessation. The SCQoL includes 14 questions. This study aims to adapt the SCQoL into Turkish language and culture and, check the reliability and validity of the inventory culturally. **METHODS:** The original instrument was forward then back-translated by two independent translators. A small sample consisting of 42 people was used to check the initial comprehension and convenance. Cronbach's Alpha was used to assess reliability and factor analysis to assess dimensionality. The Euro-Qol-5D questionnaire and corresponding Visual Analogue Scales were used for concurrent validity. **RESULTS:** A total of 152 people participated in this study. 55.9% of them were female, 44.1% of them being male. Mean age was 24.3. The internal consistency coefficient (Cronbach's alpha) of SCQoL was 0.771. Factor analysis of the scale revealed that it was composed of four factors and accounting for 67% of the total variance. Correlations were moderate with EuroQol and VAS. **CONCLUSIONS:** The culturally adapted to Turkish SCQoL has good validity and reliability, making it a potentially useful outcome measure in determining the effect of quality of life of people in Turkey.

PRS39
PREFERENCE AND WILLINGNESS TO PAY FOR A TREATMENT OF PULMONARY ARTERIAL HYPERTENSION
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OBJECTIVES: Pulmonary arterial hypertension (PAH) is a chronic, debilitating disease characterized by an increase in blood pressure in the pulmonary arteries and is associated with a burdensome low tolerance to exercise. Treprostinil is indicated in the treatment of PAH in patients with New York Heart Association Class II-IV symptoms and is available in one of two forms: infused or inhaled. The present study determined the preference among members of the general public for one treatment delivery option over the other, as well as the willingness-to-pay (WTP) for the inhaled option. **METHODS:** An online survey of members of the general public, 18 years of age or older, in the province Ontario, Canada, was conducted by presenting descriptive and clinical information on each treatment delivery option, ascertaining the participants' preference for one option over the other, and, by inviting participants who opted for the inhaled form to take part in a bidding game evaluating their WTP in terms of additional monthly insurance premiums to ensure that inhaled treprostinil would be covered by a hypothetical insurance scheme. Descriptive statistics and sub-group analyses based on demographic characteristics were calculated with regards to preference and WTP. **RESULTS:** The recruited population was more likely to be female, younger and with a higher yearly household income, when compared to the population of Ontario. Of the 386 survey participants, 85.8% preferred the inhaled treatment option, with no significant differences in terms of preference observed across age or gender. The observed median (minimum, maximum, mode) and mean (95% confidence interval) WTP in monthly insurance premiums were CAD21.50 (CAD0, CAD200, CAD50) and CAD37.25 (CAD32.51, CAD41.99), respectively; sub-group analyses based on gender, age or yearly household income yielded no significant differences. **CONCLUSIONS:** Inhaled treprostinil appears to be preferred over infused treprostinil and is associated with relatively high WTP for insurance premiums.

RESPIRATORY-RELATED DISORDERS - Health Care Use & Policy Studies

PRS40
ARE DISEASE MANAGEMENT PROGRAMS FOR COPD COST-SAVING?
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OBJECTIVES: Pharmaceutical companies are increasingly shifting from a product-centered to a customer and service-centered culture and many companies have developed disease management programs for illnesses like asthma, COPD, diabetes, arthritis, depression etc. Such programs come in all shapes and sizes and their main aim is to improve the quality of care are reduce hospital costs. However, there is insufficient evidence of cost-effectiveness of disease management programs. Aim: The aim of this study is to review the impact of COPD disease management (COPD-DM) programs on health care costs and outcomes. We also investigated the impact of disease-, intervention-, and study-characteristics. **METHODS:** We conducted a systematic review of cost-effectiveness studies of COPD-DM. The results were grouped by study, intervention and disease characteristics and, where feasible, included in a random-effects meta-analysis. **RESULTS:** We included 16 papers describing 11 studies. The meta-analysis showed that COPD-DM decreased the RR of hospitalizations (RR: 0.71 [95CI: 0.53-0.96]), and led to a reduction of hospitalization costs (€1093 [95CI: €2052-€133]) and average health care savings were €922 [95CI: €1549-€295] per patient. These savings have to be weighed against the costs of developing, implementing and managing the DM program. There was substantial heterogeneity. DM showed greater savings in hospital costs in studies including severe COPD patients (GOLD stage 3+). Savings were also greater when COPD-DM programs addressed 3 or more components of the Chronic Care Model and in studies from non-EU origin. **CONCLUSIONS:** DM decreased the risk of hospitalization and health care costs (excluding program costs), but results varied by study-, intervention-, and disease-characteristics. Future studies should more explicitly include the overhead costs of running these DM programs.

PRS41
CHARACTERISTICS AND DETERMINANTS OF PALIVIZUMAB USE IN THE NETHERLANDS
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OBJECTIVES: Respiratory Syncytial virus (RSV) is the leading cause of respiratory tract infections. Efficacy of Palivizumab in reducing RSV related hospitalizations has been proven in preterm born infants and children with congenital heart disease (CHD) or bronchopulmonary dysplasia (BPD). However, the high costs of Palivizumab may limit its use. This study described the characteristics of Palivizumab users in the Netherlands and assessed the determinants of receiving Palivizumab among infants with an indication according to the label. **METHODS:** Data for this study were obtained by linking the PHARMO database network, which includes detailed information on drug dispensing and hospitalization histories, and The Netherlands Perinatal Registry, including perinatal medical case records.