OBJECTIVES: The Recent ISPOR Task Force on Modelling emphasised the importance of conceptualising and validating models. We report a new model of COPD that has been founded on a conceptual model designed by a panel of experts prior to data analysis, implemented using a novel linked-equation approach and internally validated with the data used to generate the model parameters. **METHODS:** An expert panel, including clinicians and decision modellers with experience of COPD, developed a conceptual model including causal relationships between core components of the disease (lung function, exacerbations, symptoms and exercise capacity) and final health outcomes and resource use (survival, quality of life, cost). Risk equations describing these relationships were estimated from a three-year longitudinal study (ECLIPSE), with bi-directional relationships in the conceptual model handled by using lagged variables. The model was implemented as a linked-equation model enabling direct estimation of health service costs and quality adjusted life-years for cohorts of COPD patients over a lifetime time horizon. Internal validation was undertaken by comparing three years of predicted cohort experience with results reported for ECLIPSE. **RESULTS:** At three years, the model predicted a survival rate of 90.7%, an average annual exacerbation rate of 0.95 and an annual FEV1 decline of 38.8ml per year, which all fell within the confidence limits of the original ECLIPSE data. Projections of the risk equations over time permitted extrapolation to patient lifetimes. Potential treatment effects on intermediate risk factors lead to predicted effects on final model outcomes. **CONCLUSIONS:** We have conceptualised, implemented and internally validated a new form of model for COPD based on a series of linked equations. This model is capable of predicting COPD outcomes for a variety of potential treatment effects on intermediate risk factors. Further validation of short and long-term predictions of the model is required.

PRS22

COST EFFECTIVENESS OF BUDESONIDE/FORMOTEROL VERSUS FLUTICASONE/SALMETEROL FROM A SWEDISH HEALTH CARE PERSPECTIVE BASED ON REAL-WORLD EFFECTIVENESS AND SAFETY IN PATIENTS WITH COPD

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OBJECTIVES: Fixed combinations of inhaled corticosteroids and long-acting β_2-agonists are frequently used to reduce exacerbations for patients with chronic obstructive pulmonary disease (COPD), but some treatments with inhaled glucocorticosteroids are linked with increased risk of pneumonia. The objective of this study was to evaluate the cost-effectiveness of budesonide/formoterol relative to fluticasone/salmeterol based on both real-world effectiveness and safety data (NCT01146392) from a Swedish health care perspective. **METHODS:** Resource use, effectiveness and safety data were collected retrospectively from primary care medical records' data for patients with a diagnosis of COPD (J44) and merged with Swedish hospital, drug, and cause of death register data from 01 January 1999 to 31 December 2009. Propensity score matching on 31 variables two years pre-index was done at the index date (first prescription of fixed combination post COPD diagnosis) to minimize bias. The effectiveness variable was the number of exacerbations avoided. Exacerbations were defined as hospitalisations and emergency room visits for COPD, glucocorticosteroids prescriptions and/or antibiotics prescriptions for respiratory tract infections. Direct costs were calculated by applying year 2011 Swedish unit costs to the annual resource use for exacerbations as well as pneumonia-related hospitalisations (J10-18). Bootstrapping and one-way sensitivity analyses were used to quantify uncertainty around estimates. **RESULTS:** The annual exacerbation rate and the average annual hospitalisation days (exacerbation- and/or pneumonia-related) were 0.80 and 0.87 for patients treated with budesonide/formoterol (n=2734) and 1.09 and 1.36 for patients treated with fluticasone/salmeterol (n=2734, 27% and 36% reduction respectively, p<0.0001). Treatment with budesonide/formoterol was cost-saving compared with fluticasone/salmeterol (total average annual cost per patient was SEK 12,495 [€1384] and SEK 16,301 [€1805], respectively). Sensitivity analyses showed that results were robust. **CONCLUSIONS:** Budesonide/formoterol was the dominant strategy (more effective at lower cost) compared to fluticasone/salmeterol for the treatment of patients with COPD based on real-world effectiveness and safety data.

PRS23

ECONOMIC EVALUATION OF LINEZOLID VERSUS VANCOMYCIN FOR VENTILATOR-ASSOCIATED PNEUMONIA PATIENTS IN GUATEMALA

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OBJECTIVES: Ventilator-associated pneumonia (VAP) is associated with increasing intensive care unit (ICU) admissions, morbidity and length of stay (LOS) as it's one of the most common nosocomial infections in the ICU; raising overall costs. Literature suggests costs could be significantly reduced by using the most efficient empiric therapy. The aim of this study was to assess the cost-effectiveness (CE) of linezolid against generic vancomycin as an empiric therapy for adult VAP patients, from the public health care perspective. **METHODS:** A cohort of patients with VAP in the ICU was simulated using a decision-tree model to compare costs and effectiveness of linezolid (600 mg/12 hours) and vancomycin (15 mg/kg/12 hours) (basecase). Effectiveness measures were: microbiological success rates, mortality rates, and ICU and ward LOS. The model used a 12-week time horizon and only direct medical costs were considered (inpatient costs, medication expenses, adverse events costs, hematologic and gastrointestinal tests) Effectiveness and epidemiologic data were retrieved from published literature. Local costs (2012 US$) were gathered from the Social Security of Guatemala official databases. Monte Carlo probabilistic sensitivity analysis (PSA) was constructed. **RESULTS:** Linezolid resulted as the most effective and less expensive option for VAP adult patients. Clinical success rate was higher with linezolid (64.4%) against vancomicyn (56.1%). Mean expected ICU LOS was 18 days for linezolid and 22 days for vancomycin, ward LOS was 9 and 10 days with linezolid and vancomycin, respectively. Mortality rate was found lower in the linezolid arm (10.13%) in comparison to vancomycin (15.74%). Overall costs per patient were $23,089.15 with linezolid and $26,384.63 with vancomycin. In the CE incremental analysis, linezolid appeared as the cost-saving option. PSA outcomes support the robustness of these findings. **CONCLUSIONS:** Linezolid resulted as the cost-saving therapy for treating VAP adult patients in ICU in Guatemala.

PRS24

THE HUMANISTIC AND ECONOMIC IMPACT OF FOLLOWING EVIDENCE-BASED ASTHMA CONTROLLER THERAPY: A SIMULATION STUDY

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OBJECTIVES: To quantify the potential US societal benefits, in terms of health care costs and quality of life, of improving gaps in care by increasing compliance with guideline-driven asthma management relative to the current level of care (i.e. status quo) **METHODS:** A Markov model of asthma was created to simulate the natural history of asthma and the potential impact of improved compliance to medications over a 20 year time horizon. The current state of asthma care (status quo) in terms of the proportion of individuals who receive regular, irregular, and no controller treatment, along with parameters representing the natural history of asthma, was estimated from the literature. Total costs, exacerbation rates, and quality-adjusted life years (QALY) of a status quo strategy was compared with a hypothetical situation in which each individual receives regular controller medications according to the current recommendations (ideal strategy). All costs and outcomes were discounted at a rate of 0.02. **RESULTS:** Under the *status quo*, each individual with asthma will generate, on average, US $9681 in total medical costs and 14.3 QALYs over 20 years. By following guidelines, average total costs will increase to $18,446 producing 14.6 QALYs. The discounted number of exacerbations over 20 years for the *status quo*and optimal strategies will be 10 and 4.6, respectively. The incremental cost-effectiveness ratio (ICER) of the ideal strategy compared to status quo was estimated to be $29,217 US per QALY gained. **CONCLUSIONS:** There is a significant opportunity to reduce the socio economic burden of asthma in the US with greater adherence to evidence-based asthma management guidelines. While improved adherence to guidelines increases some costs (e.g. medications), the substantial return on investment associated with improved adherence will likely offset the extra costs.

PRS25

COST-EFFECTIVENESS OF MOMETASONE FUROATE NASAL SPRAY IN THE TREATMENT OF RHINOSINUSITIS IN MEXICO

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OBJECTIVES: Little information exists on the acute treatment provided for rhinosinusitis and its associated costs. This study assessed the cost-effectiveness of mometasone furoate versus amoxicillin for the treatment of rhinosinusitis in Mexico from a health care perspective. **METHODS:** A decision tree model was constructed using decision analytical techniques. Data sources included published literature, clinical trials, official price/tariff lists, and Delphi panel data. The comparators were mometasone furoate 200µg twice daily and amoxicillin 500mg three times daily. This study further do not included MFNS 200µg once daily as a treatment arm because it was not found to be superior to amoxicillin. The time horizon was 2 weeks. The effectiveness outcomes of the study were modeled as changes in the Major Symptom Score (MSS). MSS consists of five questions concerning rhinorrhoea, post-nasal drip, nasal congestion, sinus headache, and facial pain. Costs were valued in US dollar, year 2012 values. One-way and probabilistic sensitivity analyses were conducted to evaluate uncertainty in the results. **RESULTS:** The projected costs were US$ 258 with Mometasone furoate and $US 272 with.The benefits were 0.52 with Mometasone furoate, 0.45 with Amoxicilin. Mometasone furoate was associated with a cost savings per patient of US$ 13.92 versus amoxicillin over a period of 2 weeks from a health care perspective. The incremental cost-effectiveness ratio for Mometasone furoate dominated Amoxicilin. Sensitivity analysis confirmed the overall cost savings and gains in effectiveness. **CONCLUSIONS:** Our analysis suggests Mometasone Furoate improves health outcomes in a cost-effective manner compared with Amoxicilin, and highlights the importance of using evidence-based effectiveness estimates in economic studies of rhinosinusitis therapies

PRS26

COMPARATIVE PHARMACOECONOMIC ANALYSIS OF BUDESONIDE/FORMOTEROL MAINTENANCE AND RELIEVER THERAPY IN THE TREATMENT OF BRONCHIAL ASTHMA IN RUSSIAN FEDERATION

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OBJECTIVES: The purpose of this research was to determine the cost-effectiveness of budesonide/formoterol maintenance and reliever therapy of bronchial asthma in condition of Russian health care system. Total medical expenses and effectiveness in term of exacerbations prevention were compared for budesonide/formoterol maintenance and reliever therapy,