sensitivity analyses indicates that for these comparisons, based on a threshold of £20,000, Movantik has a probabilistic preference of 91.8% and 100% of being cost-effective. In a population of LIR patients who are taking step 3 opioids, Movantik is dominant vs. Targin over a 5 year time horizon. **Conclusions:** Movantik is a cost-effective treatment option for patients with OIC who have experienced inadequate response to laxative(s).

**PSY39**

**COST-EFFECTIVENESS ANALYSIS OF EX-VIVO EXPANDED AUTOLOGOUS CORNEAL EPITHELIAL CELLS CONTAINING STEM CELLS TO REPAIR THE DAMAGED OCULAR SURFACE IN PATIENTS WITH MODERATE TO SEVERE LIMBAL STEM CELL DEFICIENCY DUE TO OCULAR BURNS IN THE UK**


1University of East Anglia, Norwich, UK, 2Chiesi Farmaceutici Spa, Parma, Italy, *Ernst & Young, Milano, Italy*

**OBJECTIVES:** Limbal Stem Cell Deficiency (LSCD) is a rare condition characterized by the shortage of limbal stem cells in the eye resulting in corneal conjunctivitis, corneal opacity, visual impairment and even blindness. Recently, the first advanced technology product (ATMP) containing stem cells (GPlSCD01) has been recommended for approval by EMA in moderate-severe LSCD due to chemical or physical burn. A Cost Effectiveness Analysis (CEA) was performed, from a public payer perspective, to compare GPlSCD01 in LSCD with conventional management, given that, currently, no other medicinal product is approved for this disease. **METHODS:** We analyzed visual acuity and symptoms from 99 patients (average age 46.8 yrs.) treated with GPlSCD01; data were taken from a retrospective, case-series, non-randomized, non-controlled, non-randomized clinical study (H10-10821), covering 40 years follow-up. LSCD-impaired visual acuity and symptoms such as pain, burning and phopophobia were used in the model to assess the Qol associated with the condition, and Quality Adjusted Life Years (QALY) to compare the outcomes of GPlSCD01 treatment versus conservative management, in a similar patient pool. **RESULTS:** Patients under conservative treatment had between 10.29 and 17.24 QALYs, depending on LSCD severity, whereas patients treated with GPlSCD01 showed between 15.93 and 22.49 QALYs, with a total utility gain between 5.25 and 6.04 QALYs in the first two years of treatment and over a patient’s lifetime. **Conclusions:** Assuming the benefits of treatment persist over time, rituximab is more cost-effective than cyclosporine over a patient’s lifetime but not for treating both the standard threshold of £50,000 per QALY gained and an alternative higher threshold of £100,000 per QALY gained. Additional research is needed to evaluate the long-term benefits of rituximab.

**PSY40**

**COST MINIMIZATION ANALYSIS OF EQUIPPOTIENT OPIOID ALGAEICS: NATIONWIDE ANALYSIS OF MEDICARE PART D STAND-ALONE PRESCRIPTION DRUG PLANS**

1H Patel R

1University of the Pacific, Stockton, CA, USA

**OBJECTIVES:** Nearly 54 million Medicare beneficiaries, the overwhelming majority of which reside in the US. Many beneficiaries suffer from chronic pain and need to use opioid analgesics for treatment. Medicare Part D is the outpatient prescription drug benefit available to beneficiaries through private insurance carriers. Across the US, different Medicare Part D plans can have a different cost-sharing structure and formulary. We sought to examine the cost differences between therapeutically equivalent doses of opioid analgesics across different Medicare Part D plans. **METHODS:** Five short- and five long-acting opioid analgesic drugs were selected based on their prevalence of use and effectiveness at treating chronic pain. Therapeutically equivalent doses of each drug were entered into the Medicare Part D Finder Tool (www.medicare.gov) and 2015-2017 data were extracted across the country were collected. Collected data for each drug included: full cost, expected out-of-pocket costs both in a retail and mail order setting, and cost at a standard and preferred network pharmacy. **RESULTS:** Full annual drug costs varied from a low of $134.42 (Methadone 5mg, thrice daily) to a high of $10,443.30 (Hydromorphone ER 16mg, once daily). Beneficiary cost-sharing of the full annual drug costs in a retail pharmacy ranged from 36% (Hydromorphone 5/325, 12 tabs daily) to 97% (Hydromorphone ER). The annual out-of-pocket costs through mail order were between 88% (Oxycodone 5mg; 8 tabs daily) and 102% (Morphine 30mg; 2 tabs daily) of the costs in a retail pharmacy setting. Beneficiary out-of-pocket costs for the same drug was between 7% and 43% cheaper at a preferred network pharmacy. **Conclusions:** Considerable cost variability exists among equipotent opioid analgesics across Medicare Part D plans. Minimizing beneficiary out-of-pocket costs may improve economic outcomes without compromising clinical outcomes.

**PSY41**

**FORECASTING THE UNITED STATES LIFETIME COST AND OUTCOMES OF IVACAFTOR IN PATIENTS WITH CYSTIC FIBROSIS**

Blokhearnakul P, Campbell JD

1University of Colorado Anschutz Medical Campus, Denver, CO, USA

**OBJECTIVES:** Ivacaftor is a breakthrough treatment for cystic fibrosis (CF) patients with the G551D genetic mutation. Clinical trials show ivacaftor significantly improves lung function. Information on lifetime clinical effects and cost are lacking. This study aims to forecast lifetime outcomes and cost by comparing ivacaftor plus usual care versus usual care alone. **METHODS:** A lifetime Markov model of ivacaftor for G551D mutation CF patients aged ≥6 years was conducted from a United States payer perspective. The model consisted of 5 health states: 1) forced expiratory volume 1-second (FEV1) % predicted ≥70%, 2) FEV1<70%, 3) FEV1<40%, 4) Lung transplantation, and 5) Death. All inputs were determined by literature sources. Efficacy of ivacaftor was from previous randomized clinical trials for the first 2 years. The efficacy after 2 years was assumed half of the observed efficacy (consistent with United Kingdom assessment assumption). The budget impact was estimated. We indirectly estimated ivacaftor’s improvement in CF outcome gaps compared to the non-CF population. **RESULTS:** Compared to the usual care alone, ivacaftor treatment was associated with 18.09 additional life-years [95% credible interval (CI): 14.63-21.13] and 14.92 additional quality-adjusted life-years (QALYS) [95% CI, 11.92 – 17.95] over an average lifetime. Moving from usual care alone to ivacaftor treatment was associated with reducing the survival and QALY gaps of the non-CF population by 52.32% and 44.29%, respectively. The incremental lifetime cost with 3% discount was $3,740,480. The budget impact was $0.09 per member-per-month (PMPM). **CONCLUSIONS:** Ivacaftor was forecasted to increase life-years and QALYS in CF patients with the G551D mutation and move morbidity and mortality outcomes closer to that of their non-CF peers. The overall cost in patients with ivacaftor is much higher than usual care, but comes at a relatively low budget impact. Uncertainty in this literature-informed analysis could be reduced with patient-level analyses.

**PSY42**

**COST-UTILITY ANALYSIS OF PAIN MEDICATIONS USED TO TREAT ADULT PATIENTS WITH CHRONIC BACK PAIN IN THE UNITED STATES**

Shail D, Amadondo VB, Vadya V

1University of Toledo, Toledo, OH, USA

**OBJECTIVES:** Myasthenia gravis (MG) is a rare autoimmune disorder characterized by exacerbations and remissions. The costs of managing MG are higher than those of multiple other neurological diseases. There are no studies comparing the cost-effectiveness of treatment alternatives for refractory MG in patients who failed to respond to at least two successive immunosuppressive drugs. This study aimed to forecast the lifetime costs and effectiveness of rituximab, tacrolimus, and cyclosporine in a hypothetical cohort of 1,000 patients with refractory MG, aged 20 years and above. We obtained disease transition probabilities, costs and outcomes data from the published literature. We calculated the incremental cost-effectiveness ratios (ICERs) as cost per quality adjusted-life-year (QALY) gained and cost per mysthenic crisis averted after the first two years of treatment and over a patient’s lifetime. **RESULTS:** In the first two years after treatment rituximab is not cost-effective compared with cyclosporine given an ICER of $368,825 per QALY gained. However, after the first two years of treatment and over a patient’s lifetime rituximab has an ICER of $41,947 per QALY gained making it more cost-effective than cyclosporine in the context of the commonly accepted US threshold of $50,000 per QALY gained. Tacrolimus is more costly and less effective than cyclosporine and rituximab both after 2 years of treatment and over a patient’s lifetime. **Conclusions:** Assuming the benefits of treatment persist over time, rituximab is more cost-effective than cyclosporine over a patient’s lifetime but not at the threshold of both the standard threshold of $50,000 per QALY gained and an alternative higher threshold of $100,000 per QALY gained. Additional research is needed to evaluate the long-term benefits of rituximab.