

for acromegaly treatment would result into US\$8.82 million (+28%) budget expenditure increase over 3 years in Russia.

### PDB89 COST-EFFECTIVENESS ANALYSIS OF USING PEGVISOMANT FOR TREATMENT OF ACROMEGALY IN RUSSIA

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**Objectives:** Pegvisomant is an established and effective medication for patients with acromegaly, who have had an inadequate response to surgery, radiation therapy or treatment with somatostatin analogues. Currently pegvisomant is not included in the Vital and Essential Drug List (VEDL) in Russia, which limits access to this therapy for patients with limited treatment options. This pharmacoeconomic evaluation compared pegvisomant with best supportive care (BSC) from the Russian healthcare system perspective. **Methods:** Markov model of acromegaly progression on pegvisomant or BSC was developed. Model included 3 states: normal level of IGF-I concentration, elevated level of IGF-I concentration and death. Transition probabilities between the first two states were derived from the 12-week randomized clinical trial that compared three pegvisomant regimens vs placebo. After 12 weeks we assumed no transitions between normal and elevated IGF-I concentration states and only considered mortality, which was higher in the elevated IGF-I concentration state, according to earlier meta-analysis. Costs of medication and patient monitoring were considered. We used a lifetime time horizon and calculated incremental cost-effectiveness ratio (ICER) as difference in costs of pegvisomant vs BSC derived by difference in life-years gained (LYG). **Results:** Pegvisomant was associated with 26.65 LYG vs 21.60 LYG on BSC. Yearly medication costs of pegvisomant were US\$44,524 per patient. Lifetime medical costs associated with pegvisomant treatment were US\$496,971 per patient. ICER for pegvisomant vs BSC was US\$98,318 per one LYG. This value is within the actual ICER range for antineoplastic drugs, approved for the VEDL in 2017 in Russia. Sensitivity analyses showed that results were robust to variations in model assumptions. **Conclusions:** Pegvisomant is a cost-effective option of acromegaly treatment, compared to BSC, and should be recommended for inclusion into VEDL in Russia.



### PDB90 IS IT POSSIBLE TO AUTOMATE A SYSTEMATIC LITERATURE REVIEW?

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**Objectives:** The aim was to investigate whether screening abstracts for a systematic literature review could be automated by a program using natural language processing. **Methods:** A recently published Cochrane systematic review in 2018 by Lo et al was selected as the control due to its high quality and level of interest. We extracted the list of 185 abstracts included in the initial review. These were then subjected to a Python application, which analysed the text of each abstract for relevance and quality. Our program aimed to replicate the PICO framework, whereby it looked for the appropriate diabetic population with chronic kidney disease in the abstract text. It then looked for the appropriate interventions of insulin or other antidiabetic agents. Finally, the program searched for the following outcomes of interest: HbA1c, FBG, weight, all-cause death, CV death, eGFR and discontinuation. **Results:** Of the 185 abstracts identified, 44 abstracts in the original publication were screened in and included for full-text review. Our program resulted in a positive-predictive value of 71.4%, a false-positive rate of 11.0% and a false-negative rate of 28.6%. **Conclusions:** The results suggest that it is possible to automate the screening of a literature review to a reasonable accuracy. However, further improvements are required to ensure reliability. It is important to keep in mind that programs will always bear the inherent bias of its developers. In our case, we tried to minimise bias by remaining blinded to those abstracts that passed screening during development of the program. Only upon completion of the program did we then compare those screened in vs out. We are also in the process of automating full text reviews, numerical data extraction and analysis, which we hope to incorporate into this process, resulting in an accurate and efficient method of automating the entire literature review process.



### PDB91 AN MCDA APPROACH IN THE EVALUATION OF NEW TECHNOLOGIES FOR FAMILIAL HYPERCHOLESTEROLEMIA TREATMENT

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**Objectives:** To rank medicines to be prioritizing in the management of familial hypercholesterolemia (FH) using the multicriteria decision analysis (MCDA) method MACBETH. FH is a hereditary rare disease associated with some gene mutation responsible for regulate the lipid metabolism and cause early cardiovascular events. **Methods:** Priority setting was obtained with the MCDA method MACBETH in a set of four medicines: ezetimib, evolocumab, lomitapide and mipomersen. The MACBETH



is based on a constructive approach, where an overall agreement is reached when the alternatives are been compared inside a group of stakeholders. The judgment was based on the medicine's performance using seven criteria collected in the literature and validated by eight stakeholders who participated in the decision conference. The criteria were: reduction of serum low density lipoprotein cholesterol level (%); stroke event (relative risk); acute myocardial infarction event (relative risk); cardiovascular death event (relative risk); patient comfort/injection site reaction (categorical: oral route; subcutaneous route with low local reaction frequency and subcutaneous route with high local reaction frequency); withdrawal due to adverse reaction (%); cost per month (Brazilian currency-R\$). The stakeholders received, in advance, a summary of available information of each medicine and criteria description. **Results:** The rank order was evolocumab in first place, followed by ezetimib, lomitapide and mipomersen. The two last ones were considered dominated strategies since they have a low MCDA score and a high cost. The evolocumab offers more patient benefits, but it has lower efficiency (higher cost/MCDA unit). The criteria cardiovascular death event, stroke event and acute myocardial infarction event had more relevance for the final result. **Conclusions:** The study defines and validates a criteria set to evaluate the alternatives for FH in a structured approach with pre-defined steps. The stakeholders considered the MCDA method satisfactory to aid the decision-making, providing a more transparent and multidimensional judgment in the process.

### Diabetes/Endocrine/Metabolic Disorders - Medical Technologies

#### PDB92 COST-EFFECTIVENESS OF TELEMEDICINE FOR THE MANAGEMENT OF DIABETES MELLITUS: A SYSTEMATIC LITERATURE REVIEW

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**Objectives:** Diabetes mellitus (DM) is a burdensome condition for individuals to live with and an increasingly costly condition for health services to treat. Cost-effective treatment strategies are required to delay the onset and slow the progression of diabetes related complications. Telemedicine is an expanded term in health information technology that comprises procedures for transmitting medical information electronically to improve patients' health status. The objective of this study is to evaluate the cost-effectiveness of telemedicine in participants with DM. **Methods:** A systematic literature search in Embase and Medline database through Ovid was conducted to identify studies reporting use of telemedicine (teleophthalmology, telemonitoring and telephone services) in DM patients. Two independent reviewers performed the screening. The cost-effectiveness of telemedicine was assessed using Incremental Cost- Effectiveness Ratios (ICERs) in DM patients. **Results:** Of 1238 retrieved articles, 11 studies from 5 geographies (UK, US, Europe, Asia and Canada) were included. Most of the studies used cost-effectiveness analysis and Markov model. Healthcare providers were the main source of total cost. The results of the systematic search reported that overall cost-effectiveness of telemedicine compared to control group with a mean (95% CI) ICER of \$ 43179.20 (12300-74100) per QALY gained. Teleophthalmology strategy was the most cost-effective for the diabetic retinopathy patients with ICER of \$ 33552.27 (6250-60900). Telemonitoring and telephone services were also reported cost-effective for the management of DM. **Conclusions:** Results from the included studies suggest that telemedicine is cost-effective in DM patients across multiple settings. Further economics studies are required to justify that telemedicine as an intervention is a cost-effective means of delivering good healthcare.



### Diabetes/Endocrine/Metabolic Disorders - Methodological & Statistical Research

#### PDB93 BOOTSTRAPPING USED TO ESTIMATE CONFIDENCE INTERVAL (CI) WITH INVERSE PROBABILITY TREATMENT WEIGHTING METHOD (IPTW) ON PROPENSITY SCORE (PS) IN A REAL WORLD STUDY

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**Objectives:** Classical methods to estimate CI are biased when used with IPTW due to induced pseudo sample size inflation. The objective was to estimate CI<sub>95%</sub> for a primary efficacy endpoint (PEE) after IPTW method was used to balance on characteristics between patients switching or not from IV to SC Tocilizumab (TCZ) formulation. **Methods:** Effectiveness maintenance of tocilizumab in patients with Rheumatoid Arthritis (RA) was evaluated in two groups (patients switching from IV to SC formulation and patients remaining in IV formulation) by estimating the proportion of patients remaining in their DAS28-ESR category remission/LDA or moving to an inferior DAS28-ESR category at 6 months (PEE). To balance both groups

