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**Title:**

Removable dinoprostone vaginal delivery system: cost consequences model for Central and Eastern Europe countries

**Authors:**

Pacocha K, Pieniazek I, Stelmachowski J, Walczak J, Bierut A, Sajdak S, Wilczak M, Jaworowski A, Rokita W, Młodawski J, Baev OR, Bila J, Pitko V, Zhemela O, Chorna O and Lohinova O

**Journal:**

Value in Health 2018

well as on the duration of use of anticoagulant and antiarrhythmic drugs and hospital stays. Carto Thermocool Smarttouch catheter; amiodarone, sotalol, propafenone; rivaroxaban, dabigatran and apixaban were the treatment approaches used for the cost analysis in this study. The cost analyses were made based on the perspective of the Social Security Institution in Turkey. **RESULTS:** The costs per AFib patient of drug therapy versus catheter ablation were as follows: antiarrhythmic drug (4.0088 TRY vs 112 TRY), function tests (1.194 TRY vs 0 TRY), physician visits (837 TRY vs 78 TRY), heart tests (4.918 TRY vs 683 TRY), anticoagulant drug (21.502 TRY vs 392 TRY), medical devices and procedures (0 TRY vs 14.615 TRY) and hospital stay (1.620 TRY vs 312 TRY). The number of three-dimensional radio frequency catheter ablation procedures performed in Turkey in 2017 is 500. The total cost of AFib treatment for 500 patients was 17.079.30 TRY with drug therapy and 8.096.386 TRY with three-dimensional complex mapping catheter ablation. **CONCLUSIONS:** These results propose that catheter ablation requires less costly treatment than drug therapy for AFib patients in Turkey.

#### PMD50

##### MAGNETIC RESONANCE-GUIDED FOCUSED ULTRASOUND VERSUS DEEP BRAIN STIMULATION IN MEDICALLY-REFRACTORY ESSENTIAL TREMOR: A COST-CONSEQUENCE ANALYSIS IN THE UK SETTING

Nandi D<sup>1</sup>, Gedroyc W<sup>2</sup>, Hearmon NC<sup>3</sup>, Lim S<sup>4</sup>, Richard L<sup>5</sup>

<sup>1</sup>Imperial College London, London, UK, <sup>2</sup>St Mary's Hospital, Imperial College Healthcare NHS Trust, London, UK, <sup>3</sup>Costello Medical Consulting Ltd, London, UK, <sup>4</sup>Costello Medical Singapore Pte. Ltd., Singapore, Singapore, <sup>5</sup>INSIGHTEC Ltd, Tirat Carmel, Israel

**OBJECTIVES:** Deep brain stimulation (DBS) is the standard-of-care for medically-refractory essential tremor (ET) in the UK due to its established efficacy and reversibility. However, due to its invasive nature, DBS can cause potentially severe adverse events including infections and device-related complications. Magnetic resonance-guided focussed ultrasound (MRgFUS) is a minimally invasive technique explored recently in medically-refractory ET. This was a cost-consequence analysis (CCA) of MRgFUS vs. unilateral DBS in the UK setting. **METHODS:** The CCA was developed from the National Health Service (NHS) England perspective. The base case considered a 13-month time horizon to capture changes in tremor symptoms and adverse events following an initial procedure and subsequent procedures due to complications. Outcomes reported were costs, tremor score changes, life years gained, and disabilities due to adverse events. Clinical data were obtained from published literature; cost data were primarily taken from the NHS 2016–2017 reference costs. Scenario analyses considered a 24-month time horizon and alternative assumptions around clinical outcomes. Deterministic and probabilistic sensitivity analyses were employed to identify key model drivers and assess uncertainty. **RESULTS:** In the base case, MRgFUS resulted in total cost-savings of £9,772.47 per patient compared with DBS. The per patient costs for initial procedures, subsequent procedures due to adverse events (AEs), pre-procedure planning and follow-up were lower for MRgFUS than DBS by £9,086.90. Cost of AEs were lower for MRgFUS than DBS by £685.57. MRgFUS was also cost-saving in the scenario analyses. Clinical outcomes and disabilities were comparable between interventions in the base case and scenario analyses. Model results were most sensitive to MRgFUS and DBS procedure cost. **CONCLUSIONS:** These results demonstrate that MRgFUS is a lower cost intervention compared with DBS in medically-refractory ET patients in the UK, and may inform treatment decisions for patients who prefer to avoid invasive surgeries or are ineligible for DBS.

#### PMD51

##### COMPARISON OF COSTS AND OUTCOMES BETWEEN COBLATION TECHNOLOGY AND ELECTROCAUTERY FOLLOWING TONSILLECTOMY AND ADENOIDECTOMY PROCEDURES

Adeyemi A<sup>1</sup>, Delhougne G<sup>2</sup>

<sup>1</sup>Smith & Nephew, Andover, MA, USA, <sup>2</sup>Smith & Nephew, Fort Worth, TX, USA

**OBJECTIVES:** With over 530,000 procedures performed yearly in the US, tonsillectomy and/or adenoidectomy procedures are the second most common ambulatory surgical procedures performed in children. These procedures have been associated with serious complications such as acute post-operative pain and hemorrhage, requiring readmission in the patient population <12 years. This study compared readmission rates and total procedure costs in patients following tonsillectomy/adenoidectomy procedures between Coblation technology and electrocautery. **METHODS:** Patients <12 years who underwent a primary tonsillectomy/adenoidectomy procedure were identified from the 2014–2016 Premier Hospital Healthcare database, using ICD 9/10 procedure codes: 28.2, 28.3, 28.6, OCTQXZZ, OCTQOZZ, OCTPOZZ, OCTPXZZ, OCTQOZZ and OCTQXZZ. Patients who had a readmission due to hemorrhage or acute post-operative pain within 1 month post-operatively were identified based on ICD 9/10 codes: 998.11, J95.830, 338.18, or G89.18. Coblation technology and electrocautery treatment groups were created from this cohort. Multivariate regression analyses compared revision rates, departmental and total procedure costs between the 2 treatment groups, adjusting for covariates. **RESULTS:** A total of 7,562 patients met inclusion criteria, mean age (SD)= 5.5(2.6) years, male: 3,948(52.2%), white: 5,310(70.2%), number of comorbidities: ≤1= 7,547(99.8%), primary payers: Medicaid (48.98%) and Commercial (45.89%). By treatment group, 4,024(53.2%) and 3,538(46.8%) were treated with Coblation technology and electrocautery respectively. Logistic regression showed that readmission rates were comparable between the Coblation technology and electrocautery treatment groups; 2.0% and 2.1%; p=0.5953. A breakdown of procedure costs showed statistically significant lower costs for Coblation technology vs. electrocautery by: surgery (\$1,009 vs. \$1,162; p<0.0001) and pharmacy (\$102.40 vs. \$117.20; p<0.0001), respectively. However, Coblation technology compared to electrocautery had higher costs

by central supply (\$394.70 vs. 205.30; p<0.0001). A comparison of total costs showed that Coblation technology was slightly higher compared electrocautery (\$2,646 vs. \$2,591; difference=–\$55.94; p=0.0011). **CONCLUSIONS:** Coblation technology delivers comparable outcomes at near equal cost to electrocautery.

#### PMD52

##### YIELD AND COSTS OF POINT-OF-CARE SCREENING TEST VERSUS CASE FINDING TO DIAGNOSE CELIAC DISEASE IN PEDIATRIC PATIENTS

Primavera G<sup>1</sup>, Aiello A<sup>2</sup>, Grosso C<sup>3</sup>, Cambria R<sup>4</sup>, Quattrocchi O<sup>3</sup>, Agnello V<sup>5</sup>, Muccioli P<sup>6</sup>, Giulino A<sup>7</sup>, Alibrandi A<sup>8</sup>, Costa S<sup>9</sup>, Lucanto MC<sup>9</sup>, Tourni M<sup>10</sup>, Magazzù G<sup>9</sup>, Pellegrino S<sup>9</sup>

<sup>1</sup>Azienda Sanitaria Provinciale Palermo, Palermo, Italy, <sup>2</sup>Creativ Ceutical, Milan, Italy, <sup>3</sup>Azienda Sanitaria Provinciale Ragusa, Ragusa, Italy, <sup>4</sup>Azienda Sanitaria Provinciale Messina, Messina, Italy, <sup>5</sup>Azienda Sanitaria Provinciale Agrigento, Agrigento, Italy, <sup>6</sup>Azienda Sanitaria Provinciale Trapani, Trapani, Italy, <sup>7</sup>Azienda Sanitaria Provinciale Catania, Catania, Italy, <sup>8</sup>University of Messina, Messina, Italy, <sup>9</sup>Azienda Ospedaliera Universitaria A.O.U. Policlinico G. Martino, Messina, Messina, Italy, <sup>10</sup>Aix-Marseille University, Marseille, France

**OBJECTIVES:** Celiac Disease (CD) is an immune-mediated systemic disorder, common worldwide, caused by the ingestion of gluten in genetically-predisposed people. Low awareness of CD often leads to delays in diagnosis, which adds to medical costs because unrecognized CD is associated with excessive consumption of healthcare services and on-demand medications. This study has assessed the diagnostic yield and cost consequences of 2 strategies of pediatric CD in primary care: screening regardless of symptoms using a point-of-care test (POCT) for the detection versus case finding (CF). **METHODS:** Children who went to their family pediatrician were offered POCT for anti-transglutaminase immunoglobulin A antibodies. Immediately after the test, but before knowing the results, a systematic search for one or more symptoms or conditions associated with higher risk for CD was performed. All POCT-positive subjects and those who were symptomatic at CF were referred to the CD Centers for disease confirmation. The costs of examinations and diagnostic and laboratory tests were estimated with regional outpatient tariffs (Sicily), and a price of €2.50 was used for each POCT. Two sensitivity analyses were performed, using ±20% of POCT price and a pediatrician visit cost of €15.31. **RESULTS:** POCT was offered to 3,358 children. This screening detected 16 new cases of CD; CF detected 5 new cases of CD, but all of these had positive POCT. In the base case, total costs and mean cost per CD patient detected were €10,932.83 and €683.30 for screening strategy with POCT, and €3,953.90 and €790.78 for CF, respectively. In both sensitivity analyses, POCT was less costly than CF. **CONCLUSIONS:** The results of our study suggest that mass screening may bridge the diagnostic gap for CD in children. The analysis has shown that POCT is more effective and less costly, for CD patient identified, than CF strategy.

#### PMD53

##### REMOVABLE DINOPROSTONE VAGINAL DELIVERY SYSTEM: COST-CONSEQUENCES MODEL FOR CENTRAL AND EASTERN EUROPE COUNTRIES

Pacocha K<sup>1</sup>, Pieniazek I<sup>1</sup>, Stelmachowski J<sup>1</sup>, Walczak J<sup>1</sup>, Bierut A<sup>2</sup>, Sajdak S<sup>3</sup>, Wilczak M<sup>4</sup>, Jaworowski A<sup>5</sup>, Rokita W<sup>6</sup>, Młodawski J<sup>6</sup>, Baev OR<sup>7</sup>, Bila J<sup>8</sup>, Pitko V<sup>9</sup>, Zhemela O<sup>10</sup>, Chorna O<sup>11</sup>, Lohinova O<sup>12</sup>

<sup>1</sup>Arcana Institute a Certara Company, Cracow, Poland, <sup>2</sup>Ferring Pharmaceuticals Poland, Warszawa, Poland, <sup>3</sup>Clinic of Surgical Gynecology, University of Medical Sciences, Poznań, Poland, <sup>4</sup>Department of Maternal and Child Health, Gynaecology and Obstetrics Hospital of the Medical University in Poznań, Poznań, Poland, <sup>5</sup>Clinical Department of Obstetrics and Perinatology The University Hospital in Cracow, Poland, <sup>6</sup>Clinic of Gynecology and Obstetrics, Provincial Integrated Hospital in Kielce, Poland, <sup>7</sup>National Medical Research center obstetrics, gynecology and perinatology the name of Academician V.I. Kulakov, MOSCOW, Russian Federation, <sup>8</sup>Clinic of Obstetrics and Gynecology, Clinical Center of Serbia, Belgrade, Serbia, <sup>9</sup>The Government hospital Obstetrics, Gynecology and Reproductology Kcharkiv, Kcharkiv, Ukraine, <sup>10</sup>Lviv naц. Међ унiверситет, Lviv, Ukraine, <sup>11</sup>The Obstetrics and Gynecology Department #2 KNMU, Kiev, Ukraine, <sup>12</sup>Medical Academy Kcharkiv, Kcharkiv, Ukraine

**OBJECTIVES:** The aim of the project was to develop a user-friendly decision model to assess the savings and health benefits of induction of labour (IOL) when Dinoprostone Vaginal Delivery System (DVDS) is used instead of alternative technologies in local European practice. The model allowed to reveal changes in time consumed by hospital staff due to DVDS administration, demonstrate the safety profile of DVDS versus alternatives and calculate total cost of IOL for local settings. **METHODS:** The model refers to clinical and safety aspects of technologies used in current practice, including time to vaginal delivery, time to active labour, occurrence of cesarean delivery, instrumental vaginal delivery and adverse events. Efficacy and safety data was retrieved following a systematic literature review conducted in medical databases. Cost and resource use data came from local clinical practice as local data sources consisted of hospitals and medical centers. Data was collected from the hospital perspective via a dedicated questionnaire. **RESULTS:** A systematic review and data synthesis were performed for all comparators used in IOL indicated by local experts and included: oxytocin; balloon catheter; dinoprostone: cervical gel, vaginal gel, vaginal tablets; misoprostol: vaginal tablets, vaginal insert; amniotomy; mifepristone and hygroscopic cervical dilators. Preliminary results for Russian conditions indicated that per 100 patients, the number of instrumental vaginal and Cesarean deliveries avoided by replacing current practice interventions with DVDS amounted to 1.9 and 6.2, respectively. DVDS is cost-saving for the following categories of costs: inpatient stay, medical staff wages and additional oxytocin use as it generates additional expenditures in

the treatment of adverse events. **CONCLUSIONS:** The cost-consequences model used to assess profitability of DVDS joins real life data from local practice with experimental data retrieved from RCTs. The model is a transparent tool that provides information on treatment standards and costs of IOL in CEE countries.

## PMD54

# **DRUG-COATED BALLOON THERAPY FOR TREATMENT OF CRITICAL LIMB ISCHEMIA IN FEMOROPOPLITEAL ARTERY DISEASE: ECONOMIC ANALYSIS FOR THE NETHERLANDS**

Pietzsch JB<sup>1</sup>, Garner AM<sup>1</sup>, DeBrouwer B<sup>2</sup>, Manda B<sup>3</sup>, Geisler BP<sup>1</sup>, Reijnen MM<sup>4</sup>

<sup>1</sup>Wing Tech Inc., Menlo Park, CA, USA, <sup>2</sup>Medtronic Trading NL BV, Eindhoven, New Zealand, <sup>3</sup>Medtronic Cardiovascular, Santa Rosa, CA, USA, <sup>4</sup>Rijnstate Hospital, Arnhem, The Netherlands

**OBJECTIVES:** Drug-coated balloons (DCBs) for femoropopliteal peripheral artery disease (PAD) have been shown to be clinically superior and cost-effective compared to percutaneous transluminal balloon angioplasty (PTA). However, most studies focused on patients without critical limb ischemia (CLI). Our objective was to study the cost-effectiveness of DCB therapy vs. PTA in a CLI patient population in the Dutch healthcare system. **METHODS:** Target lesion revascularization (TLR) and amputation rates were extracted from the CLI subgroup of the IN.PACT Global study, in which a urea-excipient DCB was used. PTA outcomes were obtained from a systematic search of studies published through 2017. Costs were based on average radiology and surgery reimbursement PTA rates with additional cost of €480 assumed per DCB device. A Markov model computed costs and cost-effectiveness, considering in the base case a two-year time horizon and up to one reintervention. QALY computations were based on an estimated TLR-associated QALY decrement of 0.06, post-treatment utility of 0.82, and post-amputation utility of 0.68, and Dutch general population mortality adjusted by a hazard ratio of 5.0 to reflect increased mortality in CLI patients. Costs and effects were discounted at 4% and 2.5% per annum; a willingness-to-pay threshold of €50,000/QALY was assumed. Sensitivity analyses were performed. **RESULTS:** Model-projected 24-month probabilities of TLR were 26.2% and 41.0% for DCB and PTA, respectively, and amputation rates 2.8% and 6.5%. DCB was cost-saving, adding 0.0130 QALYs while saving €357. DCB was found dominant or cost-effective across a wide range of assumptions, including for a comparative TLR effect size of only one-fourth of the base case. **CONCLUSIONS:** Urea-excipient drug-coated balloon therapy for treating CLI in the femoro-popliteal artery is associated with improved patient outcomes and overall cost-savings to payers in the Dutch healthcare system, rendering it a dominant treatment strategy.



## PMD56

# **COST OF STENT-RETRIEVER MECHANICAL THROMBECTOMY IN PATIENTS WITH ISCHEMIC STROKE IN THE RUSSIAN FEDERATION**

Dombrovskiy VS<sup>1</sup>, Ivakhnenko OI<sup>2</sup>, Avxentyeva MV<sup>3</sup>, Omelyanovskiy V<sup>4</sup>, Khachatryan GR<sup>1</sup>, Musina NZ<sup>3</sup>, Savilova AG<sup>4</sup>

<sup>1</sup>The Russian Presidential Academy of National Economy and Public Administration, Moscow, Russian Federation, <sup>2</sup>Financial Research Institute of the Ministry of Finance of the Russian Federation, Moscow, Russian Federation, <sup>3</sup>Sechenov First Moscow State Medical University, Moscow, Russian Federation, <sup>4</sup>Moscow Institute of physics and technology (State University), Dolgoprudny, Russian Federation

**OBJECTIVES:** To evaluate the cost of stent-retriever mechanical thrombectomy (MTE) in patients with acute ischemic stroke (AIS) from the Russian government perspective. **METHODS:** The model was developed to simulate health outcomes and associated costs of three treatment scenarios: 1) MTE added to thrombolytic therapy (MTE + TLT); 2) MTE alone; 3) no reperfusion. Direct medical, direct non-medical and indirect costs due to AIS and its consequences were calculated for 5 years horizon. Number of patients eligible for reperfusion was estimated on the base of available data on epidemiology of AIS in RF. Patients were considered eligible for all 3 scenarios if they were taken to hospital within 4.5 hours after stroke onset, or for scenarios 2 and 3 if they were hospitalized within 6 hours. Outcome data on functional independence, disability or death were taken from meta-analysis of Campbell BC et al., 2016. The sensitivity analyses was carried out. **RESULTS:** When MTE+TLT is performed within 4.5 hours after stroke onset, AIS burden comprises 16.7 mln EURO. In the absence of reperfusion or MTE only the burden is 21.4 and 18.9 mln EURO, respectively. If MTE takes place within 6 hours after stroke onset, the economic burden of AIS is 24.2 mln EURO, that is 1.8 mln EURO less than when reperfusion is not performed. MTE + TLT or MTE alone lead to a reduction in the overall economic burden of AIS since the 2nd year after acute disease. Decrease of direct non-medical and indirect costs due to disability and death compensates increase in direct medical costs. The investments into MTE were fully covered on the 5th year. **CONCLUSIONS:** The use of MTE + TLT or MTE alone in patients with AIS is an efficient option of AIS treatment in Russia due to the decrease of direct non-medical and indirect costs.



## PMD57

# **HEALTHCARE RESOURCE UTILIZATION AND COSTS AMONG PATIENTS WITH AND WITHOUT INFECTION AFTER INTRAMEDULLARY NAILING FOR A TIBIAL SHAFT FRACTURE IN ENGLAND**

Galvain T<sup>1</sup>, Chitnis AS<sup>2</sup>, Paparouni K<sup>3</sup>, Tong C<sup>4</sup>, Holy CE<sup>2</sup>, Giannoudis P<sup>5</sup>

<sup>1</sup>Johnson & Johnson Medical SAS, Issy les Moulineaux, France, <sup>2</sup>Johnson & Johnson, New Brunswick, NJ, USA, <sup>3</sup>Synthes GmbH, Zuchwil, Switzerland, <sup>4</sup>Johnson & Johnson, Somerville, NJ, USA, <sup>5</sup>University of Leeds, Leeds, UK

**OBJECTIVES:** To evaluate the healthcare resource use and costs among patients with and without infection after Intramedullary nailing (IMN) for tibial shaft fractures (TSF). **METHODS:** A retrospective cohort design using the Clinical Practice Research Data-Hospital Episode Statistics linkage data from England was used. Patients undergoing IMN treatment for TSF were identified, with the first date of procedure being the index date. Patients were categorized into two groups based



on presence of post-surgical infection identified two days post-index through 30 and 365 days post-index. The outcomes of interest were hospital length of stay (LOS), readmission rates and all-cause direct healthcare costs over 30 and 365 days post-index. The National Health Service reference costs were assigned to healthcare resource utilization. Wilcoxon rank-sum test and chi-square test were used to detect differences between the two groups. **RESULTS:** A total of 803 patients with IMN for TSF were identified. Patients were predominantly male (73.2%), mean (±SD) age of 40.9 (±17.1) years, and a mean (±SD) Charlson Comorbidity Index of 0.04 (±0.23). The rates of post-surgical infection were 7.1% and 11.5% at 30 and 365 days post-index, respectively. Patients with infection had significantly higher mean LOS [(10.2 vs 6.8, p<0.001 at 30 days) (28.9 vs 11.3, p<0.0001 at 365 days)] and readmission rates [(40.4% vs 6.3%, p<0.001 at 30 days) (74.7% vs 35.7%, p<0.001 at 365 days)] compared to patients without infection. The mean direct healthcare costs were significantly higher among patients with infection compared to patients without infection during both 30 (£9,189 vs £6,517, p<0.001) and 365 days (£17,187 vs £8,433, p<0.001) follow-up. **CONCLUSIONS:** Healthcare resource utilization and costs are significantly increased among patients with infection compared to patients without infection at 30 and 365 days after IMN for TSF. Preventive strategies to avoid infections could lead to substantial cost savings.

## PMD58

# **A PROSPECTIVE, RANDOMIZED TIME-AND-MOTION STUDY COMPARING RATE OF PROCESSING TECHNIQUES IN AUTOLOGOUS FAT GRAFTING: AN ECONOMIC ANALYSIS**

Parekh M<sup>1</sup>, Hanson SE<sup>2</sup>, Garvey PB<sup>2</sup>, Chang EI<sup>2</sup>, Reece G<sup>2</sup>, Baumann DP<sup>2</sup>, Liu J<sup>2</sup>, Macarios D<sup>1</sup>, Butler CE<sup>2</sup>

<sup>1</sup>Allergan plc, Madison, NJ, USA, <sup>2</sup>The University of Texas MD Anderson Cancer Center, Houston, TX, USA

**OBJECTIVES:** Autologous fat grafting (AFG) is increasing every year, with 30,516 procedures in reconstructive breast surgery performed in the United States in 2016. With limited reimbursement for AFG, it is important to select an efficient processing technique to minimize the hospital economic burden. **METHODS:** A preliminary economic model was developed based on a prospective, randomized time-and-motion study comparing three AFG techniques [a passive washing-filtration system [PF], an active washing-filtration system [AF], and centrifugation [C]]. The primary outcome was rate of fat processed (ml/minute). Volume of fat injected/patient and total AFG time was used to derive AFG rate. Standard operating room cost/minute and device cost were used to estimate the total cost for AFG. Threshold and sensitivity analyses were conducted to characterize cost uncertainty. **RESULTS:** Forty-six patients were included in the study (n=15 for PF, n=15 for AF, and n=16 for C), with comparable patient and clinical characteristics between groups. The time to inject 150 ml of fat/patient was significantly lower with AF compared with either PF or C (105.1 min vs 163.4 or 290.0 min, respectively). The total cost saving with AF was \$2,862.66 (\$1,335.29–\$4,390.04) vs PF and \$6,839.25 (\$4,129.11–\$9,549.39) vs C. Threshold analyses identified a minimum of 10.2 ml of fat had to be injected/patient to see cost savings with AF vs C. Cost savings were always seen with AF compared with PF, regardless of the volume of fat injected, unless the cost of PF was assumed to be lower than AF. **CONCLUSIONS:** This is the first randomized study of AFG techniques to demonstrate that AF had significantly faster fat processing and grafting rates, translating into potential cost savings vs PF and C. These results can aid surgeons in selecting an efficient processing method considering the absence of reimbursement in AFG.



## PMD59

# **DEVELOPING A COMPREHENSIVE TREATMENT COST COMPARISON MODEL IN SICKLE CELL DISEASE**

Dierick K

Terumo BCT, Zaventem, Belgium

**OBJECTIVES:** A previous cost model created during a health technology evaluation organized by NICE in the UK, related to Sickle Cell Disease (SCD), identified the cost of a blood transfusion procedure, the cost of chelation and the cost of hospitalization as the main drivers of SCD cost for the UK health system. Our study intended to go beyond these cost drivers and to create a cost model that also includes cost of disease complications and the costs of a life lost. **METHODS:** The methods applied to create the cost model were 3-fold: a systematic literature review to identify the main cost drivers within sickle cell disease, a critical review of the model by an academic institute (i.e. the University of Sheffield) and review of the model by multiple clinicians seeing SCD patients. **RESULTS:** A universal health economic cost model was created that estimates the full cost of sickle cell disease in function of: healthcare policy, prescriber treatment choice, cost of treatment, cost of treatment complications (hospitalization and chelation), incidence of disease complications, cost of disease complications, mortality of disease complications, life expectancy and life years lost due to SCD. Incidence of disease complications varied largely per source and was built into the model as a dynamic variable that can be adjusted by the end-user. **CONCLUSIONS:** In the economic evaluation of treatment alternatives for sickle cell disease, looking only at direct treatment cost and complications of the treatment itself may largely underestimate the full cost of sickle cell disease. Health systems could additionally consider the cost of disease complications (by incidence, hospital stay, and treatment cost to overcome these complications) and life years lost.



## PMD60

# **DEVELOPING A COMPREHENSIVE TREATMENT COST COMPARISON MODEL IN GUILLAIN-BARRE SYNDROME AND MYASTHENIA GRAVIS TO COMPARE THE TOTAL COST OF IVIG BASED TREATMENT VERSUS CENTRIFUGAL THERAPEUTIC PLASMA EXCHANGE**

Dierick K

Terumo BCT, Zaventem, Belgium

**OBJECTIVES:** Published literature that discusses the total cost of treatment by means of Intravenous Immunoglobulins (IVIG) versus Therapeutic Plasma

