## PP259 Invisible Resilience: The Value Of Medical Technology In Reducing Population And Health Systems' Vulnerability To COVID-19.

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**Introduction.** COVID-19 has exposed population and health systems' vulnerability to a highly infectious disease. People with diabetes have a higher risk of COVID-19 hospitalization and death than those without. Medicines that control blood glucose reduce this risk. We quantified COVID-19 hospital admissions and deaths averted by diabetes medicines in the UK during the March-May 2020 wave.

**Methods.** We estimated COVID-19 hospital and intensive care unit (ICU) admissions averted and COVID-19 hospital deaths avoided by diabetes medicines, considering a counterfactual where those medicines were not available. We used published UK-data sources on diabetes prevalence, proportion of patients achieving diabetes control with medicines, COVID-19 infection risk, probabilities for COVID-19 hospital admission, subsequent ICU admission and hospital death. We calculated the relative risk reduction of controlled vs. uncontrolled diabetes on COVID-19 hospital or ICU admission (71% and 66%, respectively), and hospital death (38%) from the UK Open Safely data.

**Results.** Diabetes medicines are estimated to have averted 17,417 hospital admissions, 2,752 ICU-admissions and 438 hospital deaths due to COVID-19 compared to a counterfactual where those medicines had not been available in the UK.

**Conclusions.** Effective medicines to control diabetes contribute to population and health systems resilience against COVID-19. Health technology assessment and policy makers should recognize that adoption and usage of health technology reduces societies' vulnerability to similar shocks.

## PP261 Development Of A Mapping Algorithm To Predict SF-6D Values In People With Drug-Resistant Focal Onset Seizures

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**Introduction.** Focal-onset-seizures (FOS) are commonly experienced by individuals with epilepsy and have a significant impact on quality of life (QoL). This study aimed to develop a mapping algorithm to predict the 6 dimension short form questionnaire (SF-6D) values in adults with FOS for use in economic evaluations of a new treatment, cenobamate.

**Methods.** An online survey, including questions on sociodemographic, disease history, the short form (SF) 36, and an epilepsy-specific measure (quality of life in epilepsy problems questionnaire, QOLIE-31-P) was administered to individuals with drug-resistant FOS in the top 5 EU countries (UK, Spain, Germany, Italy and France). A range of regression models were fitted to SF-6D scores including direct and response mapping approaches.

**Results.** The analysis included 361 people. In the previous 28 days, the mean number of FOS experienced was three, (range: 0–43) and longest seizure-free period was 14 days (range: 1–28). Mean responses on all SF-36 dimensions were lower than general population norms. Mean SF-6D and QOLIE-31-P scores were 0.584 and 45.72, respectively. The best performing model was the ordinary least squares (OLS), with root mean squared error (RMSE) and mean absolute error (MAE) values of 0.0977 and 0.0742, respectively. Explanatory variables which best predicted SF-6D included seizure frequency, seizure severity, seizure freedom, and age.

**Conclusions.** People with drug-resistant FOS have poor QoL. The mapping algorithm enables the prediction of SF-6D values from clinical outcomes in individuals with drug-resistant FOS. It can be applied to outcome data from clinical trials to facilitate cost-utility analysis.

## PP275 Incorporating Quality-Of-Care Indicators In Health Economic Modelling: A Case-Study On Surgical Site Infections In Cardiac Surgery

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**Introduction.** Surgical site infections (SSIs) are preventable adverse events placing a large burden on service providers. Reusable electrocardiogram lead-and-wire systems can hold infection vectors after cleaning. Single-patient-use cable-and-lead systems (spECG) may help prevent cross-contamination and SSIs. SSIs are commonly included in incentive schemes as quality-of-care indicators. Readmissions within 30 days due to SSI are not reimbursed by the UK's National Health Service (NHS). Reducing SSIs could improve patient care and result in cost-of-care savings. The cost-benefit of implementing spECG was investigated in this study.

**Methods.** NHS Digital 2019 data for cardiac surgeries were assessed for SSIs occurring during the index event or 90 days post discharge. Data from 88 centers performing 1,000 surgeries or more were used to update a published health economic model of the cardiac surgery care pathway. The population was on average 68 years old, 18 percent female, 33 percent obese, and 28 percent diabetic. Costs are reported in 2019 GBP (2019 EUR) and were sourced from NHS reports.

**Results.** In total, 2,580 in-hospital SSIs were reported from 317,825 cardiac surgeries, resulting in an increased length-of-stay (LOS) of between 4.4 to 29.4 days. The 1,975 SSI-related, post-discharge readmissions' mean LOS was 13.9 days. Cost-of-care was GBP8,127 (EUR9,259) per patient, in line with NHS data. Implementing spECG reduced per-case-costs to GBP8,094 (EUR9,221), saving GBP33 (EUR38): a 3.5-fold return-on-

https://doi.org/10.1017/S0266462321001446 Published online by Cambridge University Press

investment. Savings-drivers were fewer SSIs, reduced LOS, and fewer readmissions (a reduction of 29% within 30-days, resulting in cost-offsets of approximately GBP230 (EUR262)/readmission).

**Conclusions.** This study suggests that the implementation of spECG could provide cost-benefit in reducing the burden of SSIs related to cardiac surgery. In addition to cost-of-care, the readmissions would have additionally burdened hospitals, as 29 percent would not have been reimbursed. Health-economic analyses should consider not only potential cost-savings of innovative products, but also incorporate quality-of-care indicators. This further aligns payer considerations with the common end-goal of providing maximum benefit to patients.

## PP283 Living Systematic Reviews In Time Of COVID-19: An Innovative Approach To Decision-making In An Environment Of Changing Evidence

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**Introduction.** The management of the COVID-19 pandemic is a challenge for Health Technology Assessment (HTA) methodology due to the need to formulate evidence-based recommendations in times of uncertainty in minimal time - for a large number of publications and with changing or even contradictory information. Living systematic reviews (LSRs) are systematic reviews that are continually updated, incorporating relevant new evidence as it becomes available. Since the COVID-19 pandemic fits all criteria to perform LSRs: (i) the Review question is a particular priority for decision-making, (ii) there is an high level of uncertainty about the existing evidence, and (iii) there is likely to be emerging evidence that will impact on the conclusions of the LSR, the aim of which is to analyze the role of LSRs as an innovative approach to HTA in recent years, and its impact on the management of the pandemic.

**Methods.** A systematic search of LSRs (published or protocols) was run on the main biomedical databases (Medline, Embase and Cochrane Library) in November 2020 and it was rerun in June 2021 without time limit. The results will be analyzed and classified by year and category (epidemiology, treatment, prognosis, symptoms, diagnosis and vaccines).

**Results.** The literature research has returned a total of 187 publications. The LSR concept emerged in 2014, from which some LSRs began to be published, but an exponential increase has been observed in 2020 with 76 references of which 66 percent were focused on the SARS-CoV-2. By category, 81.8 percent were focused on treatment, 41.8 percent on epidemiology, 20.9 percent on rehabilitation, 15.1 percent on diagnosis, 10.2 percent on prognosis and 2.2 percent on symptoms until June 2021. There wasn't any LSR for vaccines and 28 percent was focused on other fields.

**Conclusions.** LSRs are particularly important during the COVID-19 pandemic, with research evidence emerging rapidly, current evidence being uncertain, and new research changing policy or decisions on health. The majority of LSRs published up to June 2021 were focused on the treatment of COVID-19.

## PP290 Ongoing Swedish Initiatives To Improve The Potential For Real World Data Assessment Of Medical Devices

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**Introduction.** In 2020, the Swedish regions cemented a national managed-introduction project for medical devices, to ensure equal, cost-effective, and appropriate use. Health technology assessment (HTA) is an important component of the project. Swedish national health registers have world-class coverage and completeness but may lack information enabling adequate evaluation of medical devices. This study reviews the current situation and ongoing initiatives. Additionally, the potential for medical device health economics and outcomes research (HEOR) using Swedish registers is assessed.

**Methods.** A review of Swedish national health registers was undertaken, focusing on available data, and contextualized for the purpose of HEOR for medical devices. Additionally, the review included an evaluation of the Swedish reimbursement authority's (The Dental and Pharmaceutical Benefits Agency, TLV) ongoing initiatives to improve the potential to follow-up the impact of the technologies they assess and develop value-based pricing schemes.

**Results.** Five registers were deemed the most relevant national health registers for device research. They include high-quality longitudinal data and are linkable on a per-patient basis. For devices, main limitations include limited data on specialized outpatient care, lags in updating certain registers, lack of laboratory data, and challenges in identifying the specific device used. Reports indicate that certain limitations are being addressed, including pilot-studies investigating the opportunity for automated reporting of data from regional systems, and app-collected patient-reported health data.

**Conclusions.** Swedish registers provide comprehensive sources for HEOR studies, but limitations related to the assessment of medical device impact remain. As is common with register data reporting grouped diagnoses and interventions, specific devices are not directly identifiable in the national health registers. For some devices, this might be addressable through linkage with other data-sources. Swedish authorities are undertaking several initiatives that will likely improve the potential for HTA and follow-up of medical devices using national health register data.

https://doi.org/10.1017/S0266462321001446 Published online by Cambridge University Press