OBJECTIVES: Previous reviews of cost-effectiveness analyses (CEAs) of varicella vaccination found that dynamic transmission models should be used to properly account for indirect effects of vaccination. This study reviews CEAs of varicella vaccination that used a dynamic model to identify parameters with the greatest impact on the CEA results.

METHODS: A targeted search of MEDLINE was conducted for varicella vaccination analyses that used a dynamic model. We assessed the structural assumptions and input parameters that had the greatest impact on the cost-effectiveness results and summarized the ranges of input values and primary data sources. RESULTS: For analyses that used a dynamic transmission model were identified. The results of these studies were most sensitive to 2 structural assumptions: 1) inclusion of zoster and 2) inclusion of indirect costs. For example, whether or not zoster was included changed results from “cost-saving” to exceeding country-specific thresholds in cost-effectiveness. These results depended on the assumed magnitude of the impact of varicella vaccination on zoster cases and the time horizon for the CEA. Three input parameter values were used to impact the results; the research team commented about the merits of non-constant discounting. METHODS: We review the theoretical and empirical literature around the use of non-constant discounting, consider whether non-constant discounting is appropriate for social decision making, and propose how decision makers can incorporate non-commercial discounting in a way that is consistent and which accounts for intergenerational equity and other social value considerations. We also consider, and propose solutions to, technical hurdles associated with adopting non-commercial discounting. RESULTS: The conventional approach to discounting (using a constant rate) is appropriate only in special cases where specific assumptions are adopted. In general, non-commercial discounting is preferable. Recent work has overcome both theoretical and technical hurdles to the adoption of non-constant discounting. CONCLUSIONS: Decision makers should reconsider their existing discounting methodology to ensure that it is consistent with their perspective on social choice, any budget constraints faced, and other considerations. Where non-commercial discounting is found to be appropriate, it should be embraced by decision makers.

PM30
SHOULD DECISION MAKERS EMBRACE NON-CONSTANT DISCOUNTING?
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OBJECTIVES: Much recent debate has focused on the merits of differential discounting of costs and effects. Yet relatively little attention has been paid to the merits of using discount rates that are time-dependent (i.e. non-constant). Recent theory shows that appropriate discount rates depend upon the real rate of borrowing. Since this is determined by the bond market, and since real yields differ on countries of different maturity, this implies that discount rates ought to be non-constant. Recent research has also demonstrated that conventional objections to non-constant discounting, such as the risk of time-inconsistency, may no longer hold. Our aim in this paper is to explore research that suggests a research agenda about the merits of non-constant discounting. METHODS: We review the theoretical and empirical literature around the use of non-constant discounting, consider whether non-constant discounting is appropriate for social decision making, and (if so) propose how decision makers can incorporate non-commercial discounting in a way that is consistent and which accounts for intergenerational equity and other social value considerations. We also consider, and propose solutions to, technical hurdles associated with adopting non-commercial discounting. RESULTS: The conventional approach to discounting (using a constant rate) is appropriate only in special cases where specific assumptions are adopted. In general, non-commercial discounting is preferable. Recent work has overcome both theoretical and technical hurdles to the adoption of non-constant discounting. CONCLUSIONS: Decision makers should reconsider their existing discounting methodology to ensure that it is consistent with their perspective on social choice, any budget constraints faced, and other considerations. Where non-commercial discounting is found to be appropriate, it should be embraced by decision makers.

PM28
IMPLICATIONS OF THE INTER-RELATEDNESS OF THE PROPORTIONAL AND ABSOLUTE QALY SHORTFALL MEASUREMENTS FOR DISEASE BURDEN
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OBJECTIVES: Health technology appraisal boards such as NICE in the UK have shown interest in using both absolute and proportional quality-adjusted life years (QALY) shortfall to represent aspects of disease burden. NICE originally proposed in their value based assessment consultation paper that additive cost-effectiveness threshold weightings could be applied according to both the absolute and proportional QALY shortfall. This analysis sought to understand the relationship between the absolute and proportional shortfall and therefore whether the proposal by NICE was justified.

METHODS: The conditions selected were identified from NICE single technology appraisals published between July 2011 and December 2014. The age that treatment commenced was taken from manufacturer manuals and combined with the gender-dependent average life expectancy and age- and gender-dependent utilities in the UK to calculate the discounted QALYs accrued by a series of NICE case studies. Using an approach that was developed from information detailed health expenditure of 9.6 million members attended and unattended in four different insurers, he sought to build an explanation of expenditure information 2013, using three categories of variables: sociodemographic (age, sex), chronic (ten groups) and risk factors. To estimate the function a multiple regression was used to identify statistically significant variables that explain spending the best model, low goodness of fit and reporting criteria. Reliabilities tests on individual data are used to robustness tests for each variable and the model generally applied. Furthermore, comparisons between different insurers were identified. RESULTS: The final linear function includes 18 different variables, all significant at 10%, with an R2 of 78.9%. Differences in spending varied by age lower than that of women. The differences in betas by age groups were not significant, but different in the groups with chronic diseases and comorbidity. Can be estimated average costs for patients with chronic disease. The model fitting model fit on the same database, the differences in goodness of fit of 99%, where health spending in real per capita was $447,375 versus estimated by the model equals $447,370. CONCLUSIONS: estimating a model that includes variables associated with the disease gives higher accuracy than when only demographic variables are used and allow a more equitable distribution of risk-based resources and could be a better alternative in defining the insurance premium for a country like Colombia.
situation 3; CIs cannot defined), the combination of the two proposed methods produced CIs as single value. **CONCLUSIONS:** We reviewed the current literature related to using the conventional methods to calculate ICIER CIs, and proposed new methods to address these. Proposed methods yield CIs that can be more easily interpreted. However, some issues remain that require further discussion.

**PM35**

**METHODODOLOGY USING PHARMACY AND MEDICAL CLAIMS DATA TO EVALUATE REAL-WORLD OUTCOMES AND COSTS OF CARE IN COPD: PREDICTORS OF IN-HOSPITAL AND OUTPATIENT DEATH RATES:** Corvin FA A1, Surinach A1, Lockie JCC, Howie AM2, Hayward B3, Mahony MC3

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**OBJECTIVES:** To describe the methodology used to identify treatment cycles and determine real-world outcomes associated with use of in vitro fertilization (IVF) treat-
ments, follicle-stimulating hormone (FSH) versus FSH + human menopausal gonado-
tropin (hMG), using administrative claims data. **METHODS:** This retrospective study used data from MarketScan® ClaimMaster to identify and compare IVF treatment protocols, pregnancy and birth outcomes among women aged 18–<35 undergoing IVF between January 2009 and December 2012. Patients with ≥1 claim for a gonadotropin-releasing hormone agonist (GnRHa) or antagonist (GnRHant) (first cycle) were included in the cohort. The cohort consisted of 3,105 individuals; of which 38.3% had a subsequent episode, given the high incidence of recurrent disease, which has been confirmed in previous studies. The time to a subsequent episode was estimated for patients with ≥2 cycles. The cohort consisted of 3,105 individuals; of which 38.3% had a subsequent episode, given the high incidence of recurrent disease, which has been confirmed in previous studies. The time to a subsequent episode was estimated for patients with ≥2 cycles. **RESULTS:** The cohort consisted of 3,105 individuals; of which 38.3% had a subsequent episode, given the high incidence of recurrent disease, which has been confirmed in previous studies. The time to a subsequent episode was estimated for patients with ≥2 cycles. **CONCLUSIONS:** The findings suggest that both LCA-defined groups and initiating-service groups could be used to summarize past utilization for risk prediction modeling; the choice may depend on the outcome of interest.

**PM36**

**NON-DISCRETIONARY INPUTS ARE IMPORTANT FACTORS IN HOSPITAL EFFICIENCY STUDIES AND POLICY EVALUATION:** Passapety E4, Sir M2

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**OBJECTIVES:** Hospital efficiency is the focus of several studies and increasingly data envelopment analysis (DEA) is used to compute and compare efficiencies of hospitals for quality improvement and policy analysis. DEA is a non-parametric approach to compute efficiency considering multiple inputs and outputs and benchmark hospitals, with the presumption that the inefficient hospitals can reduce inputs and/or increase outputs to improve their efficiency. Hospitals are complex systems and have multiple non-discretionary inputs, such as type of hospital or region of location that is not under the control of administration, and hence cannot be altered. Many studies have used DEA to consider inputs and outputs in DEA models. **METHODS:** One year's worth of data from the Hospital Research & Quality’s Health Care Utilization Project data was used. Variables included full-time equivalent (FTE) count of licensed professional nurses, licensed professional nurses and aids as inputs and bed size, urban/ rural, teaching status, region and ownership as non-discretionary inputs. First a various regression models were used to run without non-discretionary inputs and then the number of efficient hospitals increased from 12 to 72. **CONCLUSIONS:** DEA can be a sophisticated method to measure hospital efficiency. Not accounting for non-discretionary inputs can radically alter the efficiency scores and bias study results. The first stage score has inefficiency and the effect of non-discretionary inputs. Since both mean and standard deviation increased dramatically, simple normalization cannot be used as a proxy. Appropriate treatment of non-discretionary inputs is necessary to make meaningful comparisons to inform quality and policy interventions.

**PM37**

**IMPACT OF SINGLE RISK FACTOR CHANGES ON LONG-TERM OUTCOMES AND COST IN A TYPE 2 DIABETES MODELING STUDY CONTRASTING PROJECTIONS WITH UKPDS66, SWEDISH NATIONAL DIABETES REGISTRY AND THE ADVANCE RISK EQUATIONS:** McNamara E1, Lamotte M2, Foss V2

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**OBJECTIVES:** Previous studies have investigated changes in risk factor (RF) variables on cost and outcomes in the IMS-CORE-Diabetes-Model (CDM) using UKPDS-66 UK-68 and UKPDS-82 risk factors (UK-68-RE). The objective of this study was to project health benefits and total lifetime costs (TLC) associated with a range of selected RF changes utilizing UK-68-RE versus recently implemented RE within the CDM. The Swedish-National-Diabetes-Registry (S-NDR) and the ADVANCE-
Risk Engine (ARE). **METHODS:** The CDM was applied to project the lifetime benefits (life years (LYs), quality adjusted life years (QALYs) and TLC per unit RF variation. **RESULTS:** When UK-68-RE were applied, projected changes in LYs were: 0.096, 0.045, 0.013, 0.071, –0.183 and 0.0 and QALYS were: 0.156, 0.067, 0.051, 0.121 and 0.0 for RF variations in HbA1c, SBP, BMI, HDL and LDL, respectively. These compared to changes of 0.103, 0.032, 0.004, 0.070, –0.195, 0.044 (LYs) and 0.150, 0.049, 0.054, 0.050, –0.132, 0.025 (QALYs) utilizing S-NDR-RE and 0.103, 0.030, 0.001, 0.065, 0.061, 0.061 (LYs) and 0.163, 0.061, 0.061, 0.061, 0.061 (QALYs). TLC decreased by $3,479, $1,065, $69, $414, $2,829 and $81, respectively. **CONCLUSIONS:** The $3,479 million worth of RF changes are translated into benefits and costs may change considerably dependent on the choice of selected risk equations.

**PM38**

**THE COST OF DRUG-RELATED MORBIDITY THAT LEAD TO EMERGENCY VISITS IN A BRAZILIAN HOSPITAL:** Freitas G1, Barbottino G2, Hughes D3, Henne1

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**OBJECTIVES:** To investigate the costs associated with the management of patients who sought emergency care due to DRMs. **METHODS:** This study was a retrospective analysis of patients’ medical records. 315 patients sought emergency services over a six-month period in a large teaching hospital in Brazil and those with DRM