by Signorovitch (WS) vs. Entropy Balancing (EB). WS is based on propensity score weights (odds of being in AGR trial) while EB relies on a maximum entropy reweighting scheme. **RESULTS:** Simulation show the optimal weighting method is to match on covariates against the AGR treatment and control arms separately. In addition, rebalancing on prognostic variables between the IPD arms using EB is beneficial when they are not reported in AGR. For example, with true treatment mean difference between AGR and IPD (IC) of one, six predictive variables in AGR and IPD and three prognostic variables in IPD, the Bucher method gives a biased estimate 0.31(Average Bootstrap 95% Confidence interval: -0.45, 1.08). WS balancing gives 0.99(0.23 –1.73), balancing on each arm separately gives 0.99(0.30-1.68) while rebalancing using EB gives 0.99(0.47-1.52). Also, simulations demonstrate that including placebo response into the weighting in addition to baseline covariates can produce biased results and is not recommended. **CONCLUSIONS:** MAIC can be improved if weighting is performed on each arm separately together with rebalancing of the IPD on the prognostic variables not reported in AGR.

PRM125
PSYCHOTROPIC PHARMACOTHERAPY ASSOCIATED WITH QT PROLONGATION AMONG VETERANS WITH POSTTRAUMATIC STRESS DISORDER

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OBJECTIVES: In 2012, the FDA issued Drug Safety Communications on several drugs associated with QT prolongation and fatal ventricular arrhythmias. Among these was citalopram, a selective serotonin reuptake inhibitor (SSRI) commonly used to treat posttraumatic stress disorder (PTSD). As minimal research has assessed drug-related QT prolongation in patients with severe mental illnesses, this study explores psychotropic drugs associated with QT prolongation among Veterans diagnosed with PTSD. **METHODS:** Patients with PTSD in the Veterans Health Administration in 2006-2009 were reviewed, identifying 176 Veterans diagnosed with QT prolongation. Cases were matched 1:4 on age, gender, visit date and setting, and physical comorbidity. Classification trees assessed QT prolongation risk among prescribed medications for the combined sample (N=880). Finally, five-year survival by prolonged QT status was analyzed. **RESULTS:** Receipt of any drug with known risk of QT prolongation varied by group (23% QT vs. 15% control, p<0.01). Psychotropic medications conferring significant risks included the antipsychotic ziprasidone (3% vs. 1%, p=0.02) and the anxiolytic buspirone (6% vs. 2%, p=0.01) but not the SSRIs citalopram and fluoxetine. Classification trees found sotalol and the tricyclic antidepressant amitriptyline carried greater risk among cardiac patients, and methadone, especially if prescribed with quetiapine, among non-cardiac patients. Per preliminary adjusted survival model, patients with QT prolongation were at increased risk for mortality (HR=1.60; 95% CI: 1.04-2.44). **CONCLUSIONS:** Decision models are particularly advantageous when exploring nonlinear relationships or non-additive interactions. These findings may potentially impact clinical decision-making concerning treatment for PTSD. For patients at higher risk of QT prolongation, antidepressants other than amitriptyline should be considered. Medications for comorbid conditions should also be closely monitored for heightened risk of QT prolongation. This study further highlights the importance of routine use of electrocardiograms for QT monitoring among patients with PTSD taking these agents.

PRM126
ENSURING APPLICABILITY OF REAL WORLD EVIDENCE TO INDIVIDUAL PATIENT DECISION MAKING

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OBJECTIVES: Methods of analyzing real world evidence (RWE) have traditionally focused on population-based outcome assessments, whereas the application of RWE to address healthcare decision making for the individual patient is less well established. The primary objective of this study was to systematically review published methods using real world data sources to inform patient-level and patient-provider decision making. **METHODS:** A systematic literature review was conducted in MEDLINE and PsychInfo from 1/1/2000 to 9/18/2014. The search strategy included methodology, design and limited publications to cancer, diabetes, cardiovascular, Alzheimer's disease, and rheumatologic conditions. A review of reference lists of identified articles enhanced the search strategy. Eligible studies were quantitative research that described statistical methodologies applicable to patient-provider decision making. Non-English and non-human studies were excluded. Articles were also excluded if they were qualitative research studies, reviews, policy/guidelines statements, or studies solely investigating a provider's perspective. Following dual eligibility review, details of the study and research methodology were extracted and summarized. **RESULTS:** The search strategy identified 1088 publications. A preliminary review of 594 articles found 46 that were eligible. The methodologies used included prediction models based on logistic, multiple regression and Cox-regression models, multivariate risk analyses, discrete choice experiments, net reclassification, and classification trees. The review is currently ongoing and additional eligible articles will be identified. Details of the application of these methods to patient-provider decision making will be presented at the meeting. **CONCLUSIONS:** There is a need to incorporate methods in research studies to support evidence-based patient-level decision making. This systematic literature review has sought to identify methods and exemplars that will enable researchers to produce work to inform patient-provider decision making. This review will make recommendations regarding appropriate methods for scientists and investigators conducting patient-centered research. Future research should consider these approaches to incorporate methods that will support evidence-based patient decision making.

PRM127
EMPIRICAL ESTIMATION OF STATISTICAL POWER AND MINIMUM NUMBER OF STUDIES NEEDED FOR A NETWORK META-ANALYSIS

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OBJECTIVES: Network meta-analysis (NMA) is increasingly used to inform reimbursement decisions and comparative effectiveness. Nevertheless, there is limited understanding of the assessment of statistical power, particularly when there is a small number of studies available. We propose an empirical calculation for statistical power using a simulation approach. **METHODS:** Simulation data were generated in minimum of 3 to maximum of 15 studies per network, using varying effect sizes and standard errors under the exchangeability assumption; where trial-specific treatment effects (δ_{ij}) came from a common distribution with mean (d_{ij}) and variance ($\sigma 2$). The common distribution is usually chosen to be a normal distribution, so that $\delta_{ij}\tilde{\ }N(d_{ij}, \sigma 2)$ where i,j are different treatments. Upon generation of simulation data, Bayesian methods were applied to each simulation set. This was repeated at least 1000 times, which enabled the estimation of the statistical power. We compared the results of simulations to the gold standard, defined by available data from each study, and Thorlund's method. **RESULTS:** The proposed method was successful in estimating the statistical power and the minimum number of studies needed, using simulation data from an NMA, compared to the gold standard. The estimations for statistical power/number of studies needed by different effect sizes, standard errors, and noise levels were compared with Thorlund's method showing more accuracy to estimate statistical power for NMA. Our method offers flexibility and can be implemented with Normal, Binomial, and Poisson distributions. Further, it can also handle multiple treatments, fixed/random effects models, and multi-arms studies. **CONCLUSIONS:** While it is difficult to derive a mathematical formula for estimating statistical power and the number of studies needed in NMA because of increased complexity caused by multiple treatment comparisons, an empirical method using simulations allows for estimation of these quantities. The proposed method will be useful for researchers designing NMA to inform decision makers.

PRM128
ECONOMICS OF DIABETES MELLITUS: THEORY AND EVIDENCE FOR BRAZILIAN DATA IN 2008

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OBJECTIVES: to measure the DM social cost based in earnings losses of Brazilian workers due to disease in 2008 using data from National Survey of Households (PNAD/IBGE). Diabetes Mellitus (DM) is characterized by the high level of blood glucose. Ministry of Health data estimated that Brazil had about 10 million DM cases in 2010, being the fourth main cause of death. WHO estimated the prevalence of DM in Brazil is 10.2%, about 20 million people. **METHODS:** a Binary Probit model to measure the participation in work force and a two-stage Heckman model to measure worked hours and productivity. Each model is estimated separately for both gender individuals, with and without disease, according three distinct definitions for DM: Restrict, Broad and Comorbidities. To capture the counterfactual effect, the model was calculated for ill and healthy individuals. The difference of both values exhibited the losses, which were aggregate to the whole population and the total cost was estimated. **RESULTS:** According each criterion, respectively, DM reduced the participation in the labor market in 0,97%; 4,60% and 7,06% for men and 0,14%; 4,79% and 6,44% for women, while reduced, respectively 1,51%; 6,40% and 9,15% in productivity and 6,44%; 15,23% and 17,58% in worked hours for women. There was no impact of DM on productivity and in worked hours for men. The DM total cost was R$ 8,064 billion, or US$ 3,451 billion converted by current exchange rate. The losses reached 0,73% of total earnings and 0,27% of Brazilian GDP in 2008. **CONCLUSIONS:** DM generates significant losses in income of Brazilian workers, especially in relation to their participation in the labor market, since affects both of gender. The results indicate that public policies should be directed to disease diagnosis and prevention, since the development of comorbidities amplifies the effect of losses.

PRM129
CLUSTER ANALYSIS OF HEALTHCARE COSTS PATTERNS IN END STAGE RENAL FAILURE PATIENTS WHO INITIATED HEMODIALYSIS

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OBJECTIVES: Cluster analysis (CA) is a widely used statistical technique that helps reveal classifications of entities with similar characteristics in large data sets. However, little is known about whether it can be applied to healthcare claims data with highly skewed cost information. This study applied different clustering methods to changes in all-cause cost data from a group of patients with end stage renal disease (ESRD) who initiated hemodialysis (HD). **METHODS:** A retrospective, cross-sectional, observational study was conducted using the MarketScan Commercial Claims database. Patients aged ≥18 years with ≥2 ESRD diagnoses who initiated HD between 2008 and 2010 were included. The K-means CA method and hierarchical CA with various linkage methods were applied to all-cause costs within baseline (12-month pre-HD) and follow-up periods (12-month post-HD) to identify clusters. Demographic, clinical, and cost information were extracted from both periods, and then examined by cluster. **RESULTS:** A total of 18,380 patients were identified. Meaningful all-cause cost clusters were generated using K-means and hierarchical CA with either flexible beta or Ward's methods. Based on cluster sample sizes and change of cost patterns, the K-means CA method and 4 clusters were selected: those with average costs in both periods (n=16,624); high costs followed by very high costs (n=113); high and increasing costs (n=1,554); or very high costs reduced to high cost (n=89). Relatively stable costs after starting HD were associated with more stable scores on comorbidity index scores from the pre- and post-HD periods, while increasing costs were associated with more sharply increasing comorbidity