various methods for adjusting confounders in estimating comparative effectiveness.

A prolific literature search performed in PubMed was conducted to identify published articles with the key words such as propensity score, instrumental variable analysis, inverse probability, Propensity Instrumental, Propensity Inverse probability, machine learning, support vector machine, CART (Classification And Regression Tree), decision trees, and tree learning. The search was performed by comparing proportions of methods before 2008 and after 2008. RESULTS: 5021 articles were found with the key word of competitiveness effectiveness. 227 articles had the key word of propensity. 56 articles had the key word of instrumental. 29 articles had the key word of inverse probability. 20 articles had key words of both propensity and instrumental. 12 articles had key words of both propensity and inverse probability. 6 articles had key word of machine learning. 6 articles had key word of CART. No article was found to have the key word of support vector machine. Overall 6.2% of articles had one of the key words, indicating usage of confounder adjustment methods in comparative effectiveness research. Two articles had three key words of propensity, inverse probability, and instrumental. These articles are not identified in the search. Based on Chi-square test, significant increase of usage with P-value < .05 in trend has been observed. CONCLUSIONS: Based on search result, significant increase in usage of confounder adjustment methods was observed since 2008. In a few articles, results from a few instrumental variable analyses by employing various methods for adjustment of confounders. Also application of machine learning methods is recommended to find stable estimates of models used, especially to adjust for time dependent confounders.

PRM11 EVALUATING CONTENT VALIDITY OF PERFORMANCE OUTCOMES (PERFOS): ESTABLISHING THE PATIENT-RELEVANCE OF THREE PERFOS IN ELECTIVE TOTAL HIP REPLACEMENT (ETHR)
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OBJECTIVES: Performance Outcomes (PERFOS) measure tasks performed by a patient under the instruction of a health-care professional. PERFOS used to support patient report through study evidence. This study explored patient experience and relevance of three elective total hip replacement (ETHR) PERFOS: the timed up and go (TUG), four step stair climb (4SC) and long stair climb (LSC).
METHODS: Eight recent tETHR patients in the US were interviewed by telephone completing three PERFOS. Participants described their experience of completing the PERFOS, and how the movements, speed and level of difficulty corresponded to activities in their everyday lives. Interviews were audio-recorded, transcribed and systematically coded. Saturation was assessed by tabulated patient summaries from which new elements reported in each interview were identified. RESULTS: The sample comprised six females and two males, with mean age 67 years. All participants related TUG movements to activities in their daily lives. Four participants related stair climbing movements to activities in their daily lives. Two participants reported LSC completion increased their confidence and staircase use. Small differences between PERFOS and everyday activities/function were reported (e.g. TUG: the type of chair and turning towards rather than away from the patient). Assessment of satisfaction suggested additional interviews might yield further variations in patient experience but that sufficient consensus and depth was achieved to understand the relevance of the PERFOS to everyday function. CONCLUSIONS: New methodological approaches developed to explore content validity of PERFOS demonstrate the connection between three PERFOS and daily function of tETHR patients.

PRM12 CLINICAL TRIALS REGISTRIES FOR SYSTEMATIC REVIEWS – AN ALTERNATIVE SOURCE FOR UNPUBLISHED DATA
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OBJECTIVES: When conducting a systematic review it is common practice to search for peer-reviewed publications and conference proceedings to identify studies relevant to a research question. However, information about studies is increasingly available through other sources and can be of importance in systematic reviews. Clinical trials registries (CTRs) provide a variety of data points that can be used in systematic reviews. Clinical trials.gov is one of the most commonly used CTRs and provides search facilities that enable the identification of trials through common search terms. In addition, there is the potential to request information from study sponsors through clinicaltrialdataquest.com. This website is supported by several prominent study sponsors and allows reviewers to request access to unpublished data which may be of importance in a systematic review.
METHODS: We searched two disease areas (melanoma and juvenile idiopathic arthritis (JIA)) for instances where there were discrepancies in reporting of endpoints between peer-reviewed publications and the clinicaltrials.gov web-page for corresponding trials. We submitted requests to clinicaltrialdataquest.com for additional information and advanced trial data from clinicaltrials.gov for additional reporting of subgroups as well as efficacy endpoints in clinicaltrials.gov that were not available in peer-reviewed publications. Results included one trial in melanoma. We also reported on one updated line patients in a peer-reviewed publication; results stratified by previous therapy were available from the CTR. In addition, results from our search in JIA included additional reporting of efficacy outcomes such as change in component scores from baseline. We detailed length of time for requests and any restrictions (06a) for submission of requested data.
CONCLUSIONS: We identified several data sources outside the primary publication. Standard data sources for systematic reviews of interventions include peer-reviewed publications, conference abstracts and clinical trial registries. Clinical study protocols are often published with search terms that may be made available on grey literature databases. Thereby, to find these, systematic reviewers must visit the journal website. Manufacturer submissions to health regulators are also increasingly made available; these give detailed trial descriptions and results presented are more likely to be comprehensible in a systematic review. Furthermore, publications for data sources in our evidence synthesis. Clinical trial protocols were used to identify definitions of endpoints included and to fulfil aspects of the critical appraisal. Fibrosis stage is an accepted treatment effect modifier in Hepatitis-C; our review therefore collected subgroup data for this. However, this was not readily available in peer-reviewed publications; we thus obtained data from EMA submission documents and UK and German reimbursement submissions. Other examples include a 2013 review of hypertension therapy which found the FDA website for studies reporting cardiovascular-related death and for one study reporting overall death. CONCLUSIONS: Systematic reviewers should be aware of additional data sources that are published alongside primary data. While peer-reviewed data is preferable, incorporation of this grey literature into an evidence synthesis could lead to a more informed overview of clinical efficacy and thereby healthcare decision making.

PRM15 INVESTIGATION OF RELATIONSHIPS BETWEEN BIOMARKERS OF POTENTIAL HARM AND CIGARETTE SMOKING MEASURES AMONG CURRENT, PAST, AND NEVER SMOKERS BASED ON NATIONAL HEALTH AND NUTRITION EXAMINATION SURVEY 2007–2012
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OBJECTIVES: Assess the potential relationships between Biomarkers of Potential Harm (BOPH), specifically WBC, APO lipoprotein, C-reactive protein, HDL, LDL, total cholesterol, and smoking biomarkers of urinary NNAL, and serum cotinine, catecholamine adjusted urinary total NNAL and 1-hydroxypropane (1-OHP), using National Health and Nutrition Examination Survey (NHANES) data from 2007 till 2012. Secondary objective was to assess the relationship between BOPH and smoking status (past, current or never), and cigarette per day (CPD) use in current smokers. METHODS: Data were obtained from NHANES 2007 to 2012. The study sample included 17,293 respondents age 21 years and above who had answered questions on cigarette smoking and had complete laboratory values for their biomarkers measurement. The population was categorized as current (CS), past (PS), and never smokers (NS), based on self-reported responses. The exposure variables were smoking status and CPD. The outcome variables were WBC, HDL, serum cotinine, and total NNAL. Analysis included three regressions of WBC (1000 cells/µL) in CS, PS and NS were 8.15, 6.97 and 6.82 respectively, and that of HDL (mg/dL) were 49.92, 53.23 and 53.53, respectively. A statistically significant correlation was observed for WBC and HDL with serum cotinine (R2 = 0.098 and 0.160) w.
PM17 LONGITUDINAL AND CROSS-SECTIONAL ASSESSMENTS OF HEALTH UTILITY IN ADULTS WITH HIV/AIDS: A SYSTEMATIC REVIEW AND META-ANALYSIS

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OBJECTIVES: Utility estimates are important health outcomes for economic evaluation of care and treatment interventions for patients with HIV/AIDS. We conducted a meta-analysis to examine the performance of preference-based instruments, estimate health utility of patients with HIV/AIDS by disease stages, and investigate changes in their health utility over the course of antiretroviral treatment. METHODS: We searched PubMed/Medline, Cochrane Database of Systematic Review, NHS Economic Evaluation Database and Web of Science for English-language peer-reviewed papers published during 2000–2013. We selected 49 studies that used 3 direct and 6 indirect preference based instruments to make a total of 218 utility measurements. Random effect models with robust estimation of standard errors and multivariate fractional polynomial regression were used to obtain the pooled estimates of utility and model their trend over time. RESULTS: Overall, the utilities of HIV/AIDS patients tended to be lower than other types of utility. Utility elicited by two of the indirect preference measures – SF-6D (0.171) and EQ-5D (0.114), and that of Time-Trade off (TTO) (0.151) was similar to utility elicited by the direct preference measure – Health Game®. Combining the results of direct preference measures tended to a lower estimate of asymptomatic HIV patients, symptomatic and AIDS patients reported a decrease of 0.25 (p=0.40) and 0.176 (p=0.001) in utility scores, adjusting for method of assessment. In longitudinal studies, the pooled health utility of HIV/AIDS patients significantly decreased in the first 3 months and improved afterwards. Magnitude of change varied depending on the method of assessment and length of antiretroviral treatment. CONCLUSIONS: The study provides an accumulation of evidence on measurement properties of health utility estimates that can help inform the selection of instruments for future studies. The pooled estimates of health utilities and their trends are useful in economic evaluation and policy modelling of HIV/AIDS treatment strategies.

PM18 IMPROVING PARAMETER ESTIMATION FOR A DECISION-ANALYTIC MARKOV MODEL TO EVALUATE THE USE OF NOVEL BIOMARKER LED STRATEGIES FOR PREVENTION OF CARDIOVASCULAR DISEASE

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OBJECTIVES: This study sought to compare and improve the methods for estimating input parameters to populate a decision-analytic Markov model for use in the health economic evaluation of biomarkers for primary prevention of Cardiovascular Disease. METHODS: An initial five state Markov model is built using the FINRISK97 cohort and follow-up for coronary and stroke events. Two different approaches to estimate the transition rates between health states are used. The first approach involves a separate analysis for each of the transitions between different health states each using a separate Cox Proportional Hazards model (censoring any move-involves a separate analysis for each of the transitions between different health states and treatment interventions for patients with HIV/AIDS. We conducted a meta-analysis to examine the performance of preference-based instruments, estimate health utility of patients with HIV/AIDS by disease stages, and investigate changes in their health utility over the course of antiretroviral treatment. METHODS: We searched PubMed/Medline, Cochrane Database of Systematic Review, NHS Economic Evaluation Database and Web of Science for English-language peer-reviewed papers published during 2000–2013. We selected 49 studies that used 3 direct and 6 indirect preference based instruments to make a total of 218 utility measurements. Random effect models with robust estimation of standard errors and multivariate fractional polynomial regression were used to obtain the pooled estimates of utility and model their trend over time. RESULTS: Overall, the utilities of HIV/AIDS patients tended to be lower than other types of utility. Utility elicited by two of the indirect preference measures – SF-6D (0.171) and EQ-5D (0.114), and that of Time-Trade off (TTO) (0.151) was similar to utility elicited by the direct preference measure – Health Game®. Combining the results of direct preference measures tended to a lower estimate of asymptomatic HIV patients, symptomatic and AIDS patients reported a decrease of 0.25 (p=0.40) and 0.176 (p=0.001) in utility scores, adjusting for method of assessment. In longitudinal studies, the pooled health utility of HIV/AIDS patients significantly decreased in the first 3 months and improved afterwards. Magnitude of change varied depending on the method of assessment and length of antiretroviral treatment. CONCLUSIONS: The study provides an accumulation of evidence on measurement properties of health utility estimates that can help inform the selection of instruments for future studies. The pooled estimates of health utilities and their trends are useful in economic evaluation and policy modelling of HIV/AIDS treatment strategies.

PM20 COMPARING THE PREDICTIVE PERFORMANCE OF TWO VARIANTS OF THE ELIXHAUSER COMORBIDITY MEASURES FOR ALL-CAUSE IN-HOSPITAL MORTALITY IN A LARGE MULTI-PAYER ADMINISTRATIVE DATABASE

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OBJECTIVES: Tools used to address confounding, such as measures of patient comorbidity, can be used to stratify prior to randomized controlled trials to compare the predictive performance of each variant/lookback period combination. RESULTS: Of 8,128,713 patients with a mean age of 51.4 years and a male composition of 41.6%, 76,235 (0.9%) were deceased at 1-year. Age, sex and all comorbidities were closer to published benchmarks. The 2012 U.S. Nationwide Inpatient Sample (NIS) was used to identify patients with a primary diagnosis for ischemic stroke, using ICD-9 diagnosis criteria. Stepwise backward selection technique with logistic regression was used to examine the variation among hospitals in the south by adjusting for patient-level and hospital-level risk factors. The analysis included hospitals with more than 30 stroke cases in the southern region of Florida. The hospital mortality rates for stroke among hospitals in the south. METHODS: The 2012 U.S. Nationwide Inpatient Sample (NIS) was used to identify patients with a primary diagnosis for ischemic stroke, using ICD-9 diagnosis criteria. Stepwise backward selection technique with logistic regression was used to examine the variation among hospitals in the south by adjusting for patient-level and hospital-level risk factors. The analysis included hospitals with more than 30 stroke cases in the southern region of Florida. The hospital mortality rates for stroke among hospitals in the south. RESULTS: The 2012 U.S. Nationwide Inpatient Sample (NIS) was used to identify patients with a primary diagnosis for ischemic stroke, using ICD-9 diagnosis criteria. Stepwise backward selection technique with logistic regression was used to examine the variation among hospitals in the south by adjusting for patient-level and hospital-level risk factors. The analysis included hospitals with more than 30 stroke cases in the southern region of Florida. The hospital mortality rates for stroke among hospitals in the south.