patient costing), more details on the various cost components and sources of data, and considerations for costing based on economic evaluation considerations (e.g. setting, perspective). CONCLUSIONS: The 2nd edition of the Guidance Document aims to better assist Canadian researchers in appropriately identifying, measuring, and sourcing the types of costs and resources relevant for economic evaluations.

HEALTH CARE EXPENDITURE STUDIES

HE1 HEALTH CARE RESOURCE UTILIZATION AMONG MEDICARE BENEFICIARIES WITH COPD: COMPARISON OF HIGH AND LOW UTILIZERS
Xu X, Yao Y, Miyata S
Trinity Partners, LLC, Walhalla, MA, USA
OBJECTIVES: The National COPD Disease Control and Prevention report estimated that the costs attributable to Chronic Obstructive Pulmonary Disease (COPD) are projected to be $49.0 billion by 2020. This retrospective claims analysis characterized and compared Medicare beneficiaries with high and low healthcare resource utilization (HCRU) as a proxy for COPD severity. HCRU defines beneficiaries with a COPD diagnosis in 2012 were identified in the Centers for Medicare and Medicaid Services (CMS) claims database. HCRU groups were defined based on the total payment amount across the inpatient, outpatient, and physician office settings; high and low utilizers represented the top and bottom quartiles, respectively. The utilization groups were compared across patient demographics, comorbidities and HCRU using t-tests. A classification tree was fitted to identify the patient characteristics that were the biggest drivers of differences in HCRU.

RESULTS: Overall, 257,752 COPD patients were identified, with 64,438 patients in each of the high and low utilization groups. The mean (95% confidence interval) payment amount was $13,644 ($12,388, $14,388) for high utilizers and $11,130 ($10,254, $11,136), respectively. On average, high utilizers had a significantly (p < 0.001) higher number of claims, longer length of stay, higher Charlson Comorbidity Index (CCI) score, more complicated comorbid respiratory conditions and medical procedures (1.9, 6.0%, 21%) relative to low utilizers (1.6, 0.2, 2.3%, 4%). The classification tree identified the most important risk factors in differentiating high and low utilizers as CCI score, comorbid anemia, COPD complexity, comorbid pneumonia and heart failure (5 for high, 4 for low). Inclusion of additional variables in the classification tree resulted in a mean decrease in the Gini index by 57%.

CONCLUSIONS: This study compared home healthcare use and expenditures among elderly Medicare beneficiaries with and without Parkinson’s disease (PD) and analyzed the extent to which individual-level factors contribute to the excess home healthcare use and expenditures among individuals with PD. METHODS: A retrospective, observational, cohort study was conducted using Medicare claims data from the Medicare 5% sample claims database with baseline (year 2006) and follow-up (year 2007) periods. The study sample included elderly (age > 65 years) fee-for-service Medicare beneficiaries continuously enrolled in Medicare Part A and B for 2006 and 2007. Beneficiaries with a PD diagnosis in 2007 were identified based on the ICD-9-CM (International Classification of Diseases, Ninth Revision, Clinical Modification) codes of 332.xx during baseline. The all-independent variables were measured during baseline. The dependent variables (home healthcare use and expenditures) were measured in 2007. Logistic regression models and square regressions were used to assess the association of PD with home healthcare use and expenditures respectively. Post regression non-linear and linear decomposition techniques were used to understand the extent to which differences in home healthcare use and expenditures among elderly Medicare beneficiaries with and without PD can be explained by individual-level factors. RESULTS: Elderly Medicare beneficiaries with PD had 13.1 percentage point higher home healthcare use. 25.5% were explained by differences in characteristics between the two groups. Among home healthcare users, those with PD had greater expenditures ($6,792) compared to those without PD ($4,965). Only 18% of the difference in home healthcare expenditures were explained by differences in characteristics between the two groups. Baseline resource use and comorbidity explained majority of the differences in home healthcare use and expenditures. CONCLUSIONS: These findings underscore the importance of developing interventions such as using appropriate evidence based co-management of multiple chronic conditions and need of interdisciplinary team collaboration to provide better care.

HE2 EXPLAINING THE EXCESS HOME HEALTH CARE USE AND EXPENDITURES AMONG ELDERLY MEDICARE BENEFICIARIES WITH PARKINSON’S DISEASE
Bhatnagar S1, Metzger A1, Iwrocki C1, Wei W1, Pan X1, Sambamoorthi U2
1Department of Arizona, Tucson, AZ, USA, 2West Virginia University, Morgantown, WV, USA
3Sanofi US LLC, Bridgewaters, NJ, USA, 4Evidera LLC, Lexington, MA, USA
OBJECTIVES: This study aimed to better assist Canadian researchers in appropriately identifying, measuring, and sourcing the types of costs and resources relevant for economic evaluations.

RESULTS: The 2nd edition of the Guidance Document aims to better assist Canadian researchers in appropriately identifying, measuring, and sourcing the types of costs and resources relevant for economic evaluations.

HE3 LONG-TERM HEALTH CARE COSTS AMONG ADULTS WITH TYPE 2 DIABETES INITIATING DPP-4 INHIBITORS
Fatt AR1, Sheehan J1, Brouillette M1, Smith DM1, Johnston S1, Kalsekar I2
1Truven Health Analytics, Bethesda, MD, USA, 2AstraZeneca, Fort Washington, PA, USA
OBJECTIVES: To examine the cost of diabetes-related utilization and costs following initiation of the dipeptidyl peptidase-4 inhibitors saxagliptin or sitagliptin in the treatment of type 2 diabetes (T2DM).

METHODS: Patients aged 18+ with ≥1 prescription claim for saxagliptin or sitagliptin between 1/1/2009 and 3/31/2012 in the Truven Health MarketScan Commercial and Comprehensive Databases were identified. Patients were required to have ≥365 day of continuous enrollment prior to study initiation and to have ≥30 days after the index date (date of the first claim), a claim with a T2DM diagnosis (ICD-9-CM 250.x, 250.x2) and no claims for a DPP-4 medication prior to the index date. All-cause and diabetes-related total costs were captured over one-year and two-year follow-up periods. Generalized linear models with log link and gamma distribution were used to account for the non-normal distribution in costs controlling for patient baseline characteristics. RESULTS: The final sample comprised 3,354 saxagliptin initiators and 26,895 sitagliptin initiators. The average age of saxagliptin initiators and sitagliptin initiators was 55.7 years old and just over 50% were males. After adjusting for baseline characteristics, saxagliptin patients had significantly lower average all-cause medical costs over the one-year ($8,406 vs. $9,368, p < 0.0001) and two-year follow-up ($17,367 vs. $19,410, p < 0.0001) compared with sitagliptin patients. Total costs were lower for saxagliptin initiators over the one-year ($13,644 vs. $14,388, p = 0.0015) and two-year follow-up ($27,491 vs. $29,198, p = 0.0002). Findings were consistent for diabetes-related medical costs (one-year: $2,097 vs. $2,370, p < 0.0001; two-year: $4,759 vs. $4,541, p = 0.0046) and total diabetes-related costs (one-year: $4,210 vs. $4,417, p = 0.0046; two-year: $8,391 vs. $8,701, p = 0.0326). CONCLUSIONS: Initiation of treatment with saxagliptin was associated with lower medical costs over one and two years compared with sitagliptin.

HE4 OPTIMIZING CANCER CLINICAL TRIALS RESEARCH INVESTMENT DECISIONS IN THE UNITED STATES: A PROOF OF CONCEPT PORTFOLIO MANAGEMENT EVALUATION
Bennette CS1, Roth JA1, Basu A1, Carlson JJ2, Ramsey S3, Veenstra DL1
1University of Washington, Seattle, WA, USA, 2Fred Hutchinson Cancer Research Center, Seattle, WA, USA
OBJECTIVES: Portfolio management is commonly used to prioritize investments within the private sector, but is not used widely to manage public research investments. METHODS: The final sample included 9 randomized Phase II/III clinical trials concepts reviewed by SWOG between 2008-2013, of which 5 were approved and 4 were not. Risk was defined as the probability of insufficient accrual (<50% of target) and measured using a previously validated prediction model. Value of Information methods were used to estimate societal return, defined both as the population-level expected health benefits (clinical return) or clinical and economic benefits (net return) of acquiring additional information to inform a decision and measured. We compared the risk-adjusted expected returns of the observed portfolio of approved trials to hypothetical alternative portfolios in which different trials might have been funded. RESULTS: The cumulative return of SWOG’s sample portfolio was valued at $11.3 billion. A hypothetical alternative portfolio of trials requiring 200 fewer patients than the observed portfolio was expected to have a clinical return of $26.3 billion. The net return of SWOG’s observed sample portfolio was $2.7 billion. An alternative hypothetical portfolio that includes four trials and requires 400 fewer patients than the observed portfolio was expected to have a net return of approximately $6.6 billion. CONCLUSIONS: A portfolio management approach appears to be a useful tool to assist in the strategic planning of grant awards and may provide new insights into the use of Medicare’s funds for more systematic approaches to prioritize trials concepts within the cancer clinical trials cooperative groups.
HT2 APPLICATION OF COST-EFFECTIVENESS LOGIC TO US MANAGED CARE DRUG FORMULARIES: LONG TERM OUTCOMES OF A VALUE-BASED FORMULARY

Young K1, Basu A2, Hansen RN1, Watkins J1, Sullivan SD2
1School of Pharmacy, University of Washington, Seattle, WA, USA, 2University of Washington, Seattle, WA, USA

OBJECTIVES: Cost-effectiveness analysis (CEA) is explicitly used for informing drug coverage decisions in many countries but not in the United States. Evidence suggests that failure to incorporate cost considerations in drug coverage decisions may lead to reduced economic efficiency in the form of increased costs or worsened health outcomes. Yet the use of CEA in the context of binary coverage decisions (yes or no) may not be politically or socially feasible in the US. In 2010, Premera Blue Cross implemented a value-based formulary (VBF) that uses CEA to determine if added benefit (AB) is present. The VBF assesses the impact of Premera’s VBF on healthcare costs and outcomes.

METHODS: We utilized an interrupted time series design with concurrent control group in order to examine the impact of the VBF on both pharmacy and medical costs for enrollees and the health plan separately and to examine the impact of the VBF on both emergency department visits and acute hospitalizations. In order to accomplish these aims, we utilize segmented regression models with two-part generalized estimating equations for analysis.

RESULTS: Preliminary descriptive analysis suggests that over the 4 years of observation, comparing the period before VBF implementation to the period after VBF implementation, both medical and pharmacy costs increased more in the control group ($38 37 and $4.79 per member per month (PMPM)) than in the VBF group ($38 16 and $2.13 PMPM). The number of emergency department visits and acute hospitalizations did not change in either group.

CONCLUSIONS: Preliminary analyses suggest that the use of cost-effectiveness principles in the US context may lead to greater economic efficiency. Subsequent studies utilizing greater control for confounding will establish more valid estimates of outcomes and costs.

HT3 ANALYSIS OF NICE DRUG TECHNOLOGY APPRAISALS (2001-2009)

Briencio V, Socano-Vazquez E

MCPHS University, Boston, MA, USA

OBJECTIVES: The National Institute for Health and Care Excellence (NICE) provides guidance and advice to improve health care in the UK. This study assessed the NICE Drug Technology Appraisals published in the period 2001-2009. METHODS: The list of NICE guidance, including published guidance, in development and consultations was extracted from NICE webpage. Descriptive statistics and chi-square were used in the analysis.

RESULTS: In September 2014, NICE listed 594 guidance documents, including 246 technology appraisals (TA), of which 42% were single-drug TAs, 158 different drugs, combinations or drug classes. 75.8% of the drug TA evaluated was recommended by NICE in the NHS.

Conclusions: More TA: Cancer (68 TA, 57.4% recommended by NICE), blood and immune system (37 TA, 68% recommended by NICE). It is not clear why the number of TA has increased from 89.5% (n = 33) in 2005-2009, to 71.7% (n = 71) in 2009-2010 (p < 0.001).

PP1 PATIENTS’ AND PHYSICIANS’ TIME TRADE-OFF PREFERENCES FOR ADVERSE OUTCOMES ASSOCIATED WITH METASTATIC COLORECTAL CANCER TREATMENTS

Morlock P1, Gonzalez JM1, Ogale S1, Somer N1, Possner J, Grotsky A1
1Genentech, South San Francisco, CA, USA, 2RTI Health Solutions, Research Triangle Park, NC, USA

OBJECTIVES: To estimate health-state utilities for adverse outcomes associated with metastatic colorectal cancer. METHODS: Patients and physicians completed time-trade-off (TTO) questions. Health states were drafted and refined based on literature review, and patient and clinician interviews. Four adverse conditions were evaluated: severe pain, pustulopustular rash (rash), serious bleeding, severe heart attack, and gastrointestinal perforations. Respondents evaluated the risk of serious bleeding, heart attack, and gastrointestinal perforation. Three event risk levels were randomized across events and respondents. Rash was presented as a deterministic outcome, so respondents evaluated the impact of experiencing the rash, not as a “risk” of developing rash. Patients and physicians evaluated the health states in TTO questions that provided a range of time in the adverse health state that would lead respondents to prefer the health state over perfect health. TTO data were analyzed using an interval regression model to estimate the health-state utility for each side effect. Results were used to inform the health-state utility of the outcomes' clinically relevant levels corresponding with the most commonly used targeted treatments for mCRC, VEGF and EGFR (20% chance of rash, 5% chance of serious hemorrhage, and a 2% chance of gastrointestinal, infections and cardiovascular adverse event).

RESULTS: A total of 127 patients and 150 physicians completed the TTO questions. Among clinically-relevant levels of the health states for patients, cardiopulmonary adverse had the lowest utility (0.68), with serious hemorrhage (0.74), GI perforation (0.79) and rash (0.91) having higher levels of utility. Utility values for patients had a similar pattern: cardiopulmonary adverse (0.75), serious hemorrhage (0.76), GI perforation (0.82) and rash (0.92).

CONCLUSIONS: Results add to previously published literature regarding utilities for adverse outcomes from patients’ and physicians’ perspectives. Results show that patient and physician ratings of health states were largely consistent, suggesting agreement in the perceived impact of these adverse events.

PP2 PATIENT PREFERENCES FOR FIRST-MANUFACTURE TREATMENTS FOR OVAIRIAN CANCER

Wallach CA1, Foulou C1, Hackshaw MP2, Pugh A1, Jhangi S1, Haghparast M1
1RTI Health Solutions, Research Triangle Park, NC, USA, 2GlaxoSmithKline, Philadelphia, PA, USA

OBJECTIVES: Ellicit medicine preferences of women eligible to receive first-manufacturer treatment for ovarian cancer and estimate benefit-risk trade-offs.

METHODS: In the United States with self-reported physician diagnosis of ovarian cancer and eligible for maintenance therapy completed an online discrete-choice experiment (DCE) survey. The survey presented nine choice questions including a first-line medical treatment, a second-line medical treatment, and levels, respondents placed the greatest weight on avoiding severe diarrhea, followed by reducing the risk of GI perforation, and increased PFS. Respondents distinguish between no nausea and mild nausea. A relative to the other attributes and levels, respondents placed the greatest weight on avoiding severe diarrhea, followed by reducing the risk of GI perforation, and increased PFS.

CONCLUSIONS: Women with ovarian cancer were willing to trade-off efficacy (PFS) for improvements in side effects and risk. The lack of differences across subgroups suggest consistent preferences across the attributes within our sample.

PP3 PATIENT VERSUS GENERAL POPULATION PREFERENCES IN ANTICOAGULANT THERAPY

Najafzadeh M., Gagne J.J., Choudhry N.K., Polinski J., Avorn J.L., Schneeweiss S

Brigham and Women’s Hospital and Harvard Medical School, Boston, MA, USA

OBJECTIVES: Preference studies in the context of anticoagulation therapy can be used to inform quantitative benefit-risk analyses. Whether patients with cardiovascular diseases (CVD) and the general population have different preferences for benefits and risks of anticoagulant therapy is unknown. Using a Discrete Choice Experiment (DCE), we elicited preferences for several anticoagulant treatment outcomes between patients and the general population.

METHODS: A sample of patients with CVD and a general US population sample were selected from online panels. A DCE questionnaire was designed and administered to elicit preferences for benefits and risks. Seven attributes described hypothetical treatments randomly selected, or comparable study arms preventing a complete assessment of whether significant patient and provider preferences were observed.

CONCLUSIONS: Significant patient and provider preferences were observed. Future clinical development plans should include well-designed comparative studies to improve likelihood of reimbursement and patient access.