Sensitivity analyses were conducted to test the robustness of the model. One-way sensitivity analyses were conducted on all variables to assess the cost-effectiveness ratios in dollars per quality-adjusted life year (QALY) for empirical treatment with amantadine during peak influenza season is notably more cost-effective than empirical treatment with oseltamivir. Both reductions in test prices and improvement in accuracy of rapid influenza tests will be needed to make testing and treatment strategies attractive alternatives.

**AR1**

**ASSESSING THE COST-EFFECTIVENESS OF COX-2 SPECIFIC INHIBITORS FOR ARTHRITIS IN THE VETERANS HEALTH ADMINISTRATION**

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**OBJECTIVE:** This study was designed to assess the cost-effectiveness of cyclooxygenase-2 specific (COX-2) inhibitors (rofecoxib and celecoxib) over non-selective non-steroidal anti-inflammatory drugs (NSAIDs) in high-risk arthritis patients from the perspective of the Veterans Health Administration (VA).

**METHODS:** This literature-based economic analysis compared rofecoxib and celecoxib to NSAIDs in two arthritis patient populations considered at higher risk of developing clinically significant upper gastrointestinal events (CSUGIEs): 1) patients of any age with previous medical history of perforation/ulcer/bleed (PUB), and 2) patients 65 years and older (regardless of history of PUB). Two outcomes measures were reported 1) incremental cost per CSUGIE averted over 1 year, and 2) incremental cost per quality-adjusted life year (QALY) gained, considering both the mortality and morbidity associated with gastrointestinal (including CSUGIEs) and cardiovascular-related adverse events. When possible, costs were modeled to reflect the VA perspective. Sensitivity analyses were conducted to test the robustness of the analysis.

**RESULTS:** Compared to NSAIDs, rofecoxib and celecoxib increased costs but reduced the incidence of CSUGIE. Cost per CSUGIE avoided were $7,476 and $16,379 (in patients aged 65 years) for celecoxib and rofecoxib, respectively. In both populations, celecoxib was associated with a cost per QALY less than $1000 to $8000 depending on age and risk status. Results were sensitive to influenza illness rate, proportion of influenza-like illness that is confirmed influenza, and influenza vaccination status. Testing and treatment options were more costly and less effective than empirical treatment options. Probabilistic sensitivity analysis suggests that empirical treatment with amantadine has similar cost-effectiveness ratios under many scenarios while the cost-effectiveness ratios of empirical treatment with oseltamivir show wider variability.

**CONCLUSIONS:** Empirical treatment with amantadine during peak influenza season is notably more cost-effective than empirical treatment with oseltamivir. Both reductions in test prices and improvement in accuracy of rapid influenza tests will be needed to make testing and treatment strategies attractive alternatives.

**AR2**

**A COST-EFFECTIVENESS ANALYSIS OF BIOLOGICAL TREATMENTS FOR RHEUMATOID ARTHRITIS**

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**OBJECTIVE:** The present study compared the cost-effectiveness of four biologics—adalimumab, anakinra, etanercept, and infliximab—used in the treatment of rheumatoid arthritis (RA).

**METHODS:** A decision analytic model was constructed to estimate the costs and effectiveness of these biologics used alone or in combination with methotrexate (MTX) during one year, from the perspective of a managed-care organization. Direct costs consisted of drugs and health care resources. Effectiveness was measured by Quality-Adjusted Life Years (QALYs) based on preference weights and health states in which patients achieved one of four levels of response according to the American College of Rheumatology (ACR) response criteria (No ACR 20, ACR20, ACR50, ACR70) and had one of the four levels of adverse effects (no, mild, moderate, severe) due to their treatments. Drug costs were US average wholesale price. Costs for health care resources were those published by the Committee of Medicare and Medicaid Services and in the MEDSTAT DRG Guide. Preference weights were obtained from a survey on patients with RA in which visual analogue scale technique was used. Probabilities of health states were derived from published clinical trial reports. One-way sensitivity analyses were conducted on all variables to test for robustness of the model.

**RESULTS:** Among monotherapies, the incremental cost-effectiveness ratio (iCER) of etanercept compared to anakinra (the lowest cost option) was $13,387 per additional QALY, while etanercept dominated adalimumab. Among combination therapies, the iCER of etanercept + MTX compared to anakinra + MTX was $7925 per additional QALY. Etanercept combination therapy dominated adalimumab and infliximab combination therapies. However, the costs of etanercept + MTX and adalimumab + MTX were almost equal. Results were sensitive to changes in treatment costs and probabilities of health states in directions as predicted.

**CONCLUSIONS:** For monotherapy and combination therapy regimens, anakinra was the least expensive option while etanercept dominated other treatments.

**AR3**

**REVALIDATION OF THE ORIGINAL CEDARS-SINAI RHEUMATOID ARTHRITIS HEALTH-RELATED QUALITY OF LIFE (CSHQ-RA) INSTRUMENT**

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**OBJECTIVE:** This study reassessed the psychometric characteristics of the original 33-item CSHQ-RA instrument using a representative population of RA patients from 55 sites across the US.

**METHODS:** Three hundred seven of 309 screened patients from a 24-week multicenter, open-label, single arm study of RA patients receiving anakinra completed the 33-item CSHQ-RA, the Medical Outcomes Study Short Form-36 (MOS SF-36) and the Stanford Health Assessment Questionnaire (HAQ)
**Abstracts**

Disability Index. Data at screening and baseline were used to examine the convergent validity, discriminant validity, internal consistency, and test-retest reliability. Convergent validity was tested, using Pearson’s correlations, by comparing total and sub-scale scores on the CSHQ-RA to those from the Mental and Physical Component Summary (MCS and PCS) of the MOS SF-36 and HAQ. ANOVA and Kruskal-Wallis tests were used to assess the discriminant validity of the CSHQ-RA. Internal consistency was measured by Cronbach’s alpha coefficient. Test-retest reliability was assessed using intraclass correlation coefficients (ICCs). RESULTS: Response rate at baseline was 95% (291). Eighty-one percent of respondents were female; mean age was 52 years (±12); mean duration with RA was 10.8 years (±10.4). At baseline, mean scores on instruments were HAQ 1.5 (±0.7), MCS 37.9 (±10.9), and PCS 31.2 (±8.3). Pearson’s correlations between the CSHQ-RA and the MOS SF-36 and HAQ scores ranged from −0.33 to −0.73 (P < 0.0001) and 0.39 to 0.76 (P < 0.0001), respectively. The difference in scores on the CSHQ-RA of patients with different levels of physical disability as measured by the HAQ was statistically significant (P < 0.0001). Cronbach’s alpha coefficients were >0.9 indicating good internal consistency. Test-retest reliability was demonstrated in the instrument’s subscales with ICCs ranging from 0.82 to 0.94. CONCLUSIONS: These results support the validity and reliability of the original CSHQ-RA when tested in a representative patient population. Research to assess responsiveness and clinically significant change of the CSHQ-RA is underway.

**THE DEVELOPMENT OF PROPENSITY SCORES FROM ADMINISTRATIVE DATABASES FOR THE ANALYSIS OF THE EFFECTIVENESS OF AN OSTEOARTHRITIS ACADEMIC DETAILING SERVICE ON PRESCRIBING BEHAVIOUR**

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OBJECTIVES: The Nova Scotia Osteoarthritis (OA) Academic Detailing Service is voluntary and as such questions of selection bias when comparing the physicians’ prescribing behaviour that volunteered with those that did not are justified. The objective is to abate this bias, using propensity score methodology to create balanced experimental groups for the analysis of the treatment effect. METHODS: A total of 989 of the 1403 respondents were female; mean age was 52 years (±12); mean duration with RA was 10.8 years (±10.4). At baseline, mean scores on instruments were HAQ 1.5 (±0.7), MCS 37.9 (±10.9), and PCS 31.2 (±8.3). Pearson’s correlations between the CSHQ-RA and the MOS SF-36 and HAQ scores ranged from −0.33 to −0.73 (P < 0.0001) and 0.39 to 0.76 (P < 0.0001), respectively. The difference in scores on the CSHQ-RA of patients with different levels of physical disability was statistically significant (P < 0.0001). Cronbach’s alpha coefficients were >0.9 indicating good internal consistency. Test-retest reliability was demonstrated in the instrument’s subscales with ICCs ranging from 0.82 to 0.94. CONCLUSIONS: These results support the validity and reliability of the original CSHQ-RA when tested in a representative patient population. Research to assess responsiveness and clinically significant change of the CSHQ-RA is underway.

**DO DRUG PRICES REFLECT VALUE? DO FORMULARY POLICIES?**

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OBJECTIVES: Prescription drugs that provide high value should command higher prices than lower value drugs other things equal. We examined correlations between a drug’s price and its economic merit, as measured in cost-utility analysis (CUAs). We also examined whether formularies policies are consistent with cost-utility (CU) ratios. METHODS: CUAs from 1998 through 2001 on pharmacotherapies were selected from a large registry of analyses. All CU ratios and drug cost estimates were calculated and reported in analyses and standardized to 2002 US$. Spearman correlation coefficients were used to quantify the association between drug prices and CU ratios. We examined the Florida Medicaid Preferred Drug List and the Harvard Pilgrim Pharmacy Program to analyze whether insurers cover drugs with good value. Wilcoxon rank sum test was performed to assess if preferred drugs had different ratios than non-preferred drugs. RESULTS: Of 205 ratios, 16.1% were for short-term treatment (<2 months), 29.8% intermediate treatment (2–18 months), and 54.2% lifetime treatment. Ten and seven-tenths percent of ratios were cost saving and 8.3% dominated. Correlations between ratios and prices were 0.4991 (P = 0.0069), 0.1154 (P = 0.4724) and 0.2892 (P = 0.0041) for short, intermediate, and lifelong drugs, respectively. CU ratios did not differ significantly from preferred to non-preferred drugs on both health plans. Among cost-saving therapies, only 68.2% were covered by Florida Medicaid and 72.7% by Harvard Pilgrim. Among dominated drug interventions, 88.2% were covered by Florida Medicaid and 94.12% by Harvard Pilgrim. CONCLUSIONS: CU ratios of pharmacotherapies are positively associated with price, but the correlation is low among intermediate and lifelong drugs. Preferred drugs on two health plans generally do not reflect better cost-effectiveness. These results may reflect the absence of value-based pricing and lack of evidence-based reimbursement policies, or the fact that CUAs are poorly conducted (e.g., they have inappropriate comparators), or do not reflect decision-makers’ perceptions of value.

**DECISION-MAKER’S PERCEPTIONS OF ACCESS TO HIGH COST DRUGS (HCDs) IN PUBLIC HOSPITALS IN AUSTRALIA**

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OBJECTIVE: To investigate the perceptions, concerns and attitudes of decision-makers regarding access to HCDs in public hospitals. METHODS: In-depth, semi-structured interviews were conducted with public hospital senior managers, directors of pharmacy and senior medical doctors in a Sydney Area Health Service. Topics for the interviews included the decision-making process and associated problems and solutions to matters of access to HCDs. Interviews were audiotaped, transcribed verbatim, thematically content analyzed and coded using NVivo software. RESULTS: Data analysis identified a number of emerging themes. Decision-makers perceived health care system funding