simulate RA evolution after treatment with etanercept (basecase treatment), adalimumab or infliximab as first-line therapies and their associated costs over a 12-month time horizon. Therapy continuation or switch was evaluated at week 24. Effectiveness measures were ACR70 response and quality adjusted life years (QALYs) gained. Direct medical costs included biologics, concomitant drugs, medical follow-up and adverse events management. Clinical response was extracted from published literature, while costs were collected from Colombian public official databases. Probabilistic sensitivity analyses were performed through Monte Carlo Simulation second-order approach. **RESULTS:** In base case analysis estimated effectiveness resulted in [ACR70, QALY]: etanercept [31.3%, 0.79]; adalimumab [18.1%, 0.77] and infliximab [12.8%, 0.73]. Expected mean costs per patient were 23,065USD, 24,869USD and 25,853USD, respectively. In cost-effectiveness and cost-utility analysis, etanercept was the less costly and the most effective alternative being cost-saving in all comparisons: 2789USD less than infliximab(most costly alternative); 18.5% more patients met ACR70 response regarding infliximab(the least effective alternatives); incremental utility reached -0.0576 versus infliximab. Acceptability curves showed that etanercept regardless willingness to pay would be the most cost-effective biologic. **CONCLUSIONS:** Due to its lower costs and favorable effectiveness profile, etanercept is dominant regarding ACR70 response and QALYs gained over other biologic treatments in the management of RA at Colombian public health care system.

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THE COST EFFECTIVENESS OF GLUCOSAMINE SULPHATE POWDER (GLUSARTEL) FOR THE TREATMENT OF OSTEOARTHRITIS OF THE KNEE

Batty AJ[1], Birrell F[2]
[1]*BresMed Health Solutions, Sheffield, South Yorkshire, UK,* [2]*University of Newcastle, Newcastle, UK*

OBJECTIVES: Oral glucosamine formulations are frequently used as a food supplement for joint maintenance, with little supportive evidence. However, Glusartel, a formulation of glucosamine (produced by Rottapharm), has been shown to increase oral bioavailability and has been studied in over 7,000 patients, showing a significant improvement in joint space narrowing and knee replacement. The cost-effectiveness of the new product was studied compared to both standard of care and other glucosamine products. **METHODS:** A four state (with death as a sink state) Markov model was constructed to investigate disease progression, patient utility (mapped from the Western Ontario and McMaster Universities Arthritis Index (WOMAC)) and cost. Efficacy was taken from two pivotal trials, while costs were taken from standard sources including NHS Reference Costs, PSSRU, and the British National Formulary. All costs were inflated to financial year 2009/2010, with the perspective taken that of NHS Scotland. **RESULTS:** Using a 50 year (lifetime) time horizon, with patients beginning treatment at age 62 (as seen in the clinical trials), patients treated with Glusartel are estimated to cost £1799 more than those treated with standard management (£6443 vs. £4645), but gain an additional 0.15 (2 d.p.) QALYs (9.45 vs. 9.31), generating an ICER of £12,402. Compared with currently used glucosamine treatment, even conservatively assuming equal efficacy, Glusartel produces a cost saving of £700, and is dominant in outcomes when the assumption around treatment efficacy is relaxed. The model is sensitive to the time horizon, utility in mild/moderate arthritis and data source for costs, with the main driver being the efficacy of Glusartel in delaying severe arthritis. **CONCLUSIONS:** From the perspective of NHS Scotland Glusartel is highly cost-effective compared to standard of care, and cost saving compared to other glucosamine products. By revising existing prescribing patterns, NHS Scotland could both improve patient outcomes, and realise cost savings.

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A STRUCTURED LITERATURE REVIEW OF RHEUMATOID ARTHRITIS ECONOMIC MODELS FOR BIOLOGICS

van Nooten F[1], Gajria K[2], Kansal AR[3]
[1]*United BioSource Corporation, London, UK,* [2]*MedImmune LLC, Gaithersburg, MD, USA,* [3]*United BioSource Corporation, Bethesda, MD, USA*

OBJECTIVES: To review relevant Rheumatoid Arthritis (RA) economic models for biologics; and identify potential model limitations. **METHODS:** Search targeted economic evaluations of RA biologics since 2000 using Medline, EMBASE, and Cochrane databases. Articles were subjected to a two level review process before data abstraction. **RESULTS:** Twenty-six economic evaluations were published assessing costs and outcomes associated with RA biologics. Most models used a payer perspective. Two methotrexate (MTX)-naïve patient models were cost utility analyses (CUA); one was a patient simulation model and one a decision analytic model. Of seventeen models for disease modifying anti-rheumatic drug (DMARD)/MTX failure populations, sixteen were CUAs and one was a cost-effectiveness (CE) model based on cost/ACR improvement achieved; model structures included patient level simulation, Markov, and decision analytic models. Of seven models identified for anti-TNF inhibitor failure populations, five were CUAs and two were CE models where CE was defined by both cost/remission and cost of achieving low disease activity (Disease Activity Score (DAS)−28 ≤3.2); six models employed a simulation structure and one a Markov structure. Results varied widely across studies due to heterogeneity in the time horizon, perspectives, year of costs and comparators. Model Incremental cost effectiveness ratios (ICERs) ranged from $4,849 (2007$)−$47,157 (2007$) per QALY for MTX-naïve, $14,518 (1998$) −$498,420 (2005$) per QALY for DMARD/MTX failure, and $12,869 (2006$)−$76,363 (2008$) per QALY for TNF-failure. Key limitations included limited availability of treatment data over long time horizons, and use of Health Assessment Questionnaire (HAQ) as primary outcome and as determinant of utility. **CONCLUSIONS:** We recommend future modeling efforts evaluate the use of direct utilities versus mapping; advantages of CUA versus CE and simulation approach using patient level data; benefits of longer time horizon; and inclusion of both health related quality of life assessment such as HAQ and disease activity such as DAS-28 as model inputs.

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ECONOMIC EVALUATION OF TOCILIZUMAB FOR THE TREATMENT OF SYSTEMIC JUVENILE IDIOPATHIC ARTHRITIS IN MEXICO

Carlos F[1], Clark P[2], Lechuga D[3]
[1]*R A C Salud Consultores S.A. de C.V., Mexico City, Mexico,* [2]*Hospital Infantil Federico Gómez, Secretaría de Salud, Mexico, Mexico, Mexico,* [3]*Roche Mexico, Mexico, Mexico, Mexico*

OBJECTIVES: Half of patients with systemic juvenile idiopathic arthritis (sJIA) will eventually fail to non-steroidal anti-inflammatory drugs (NSAIDs) or corticosteroids. Tocilizumab (TCZ) is indicated for patients with refractory sJIA. We aimed to determine the cost and the effectiveness of adding TCZ to conventional treatment for sJIA in Mexico. **METHODS:** We designed two decision models to compare TCZ versus placebo. In each model, two time horizons were analyzed: 12 weeks and one year. Target population consists of patients (2-19 years) with active sJIA and inadequate response to NSAIDs and corticosteroids. The dosing scheme for TCZ was based on body weight: 8 mg/kg for patients ≥30 kg and 12 mg/kg for patients <30 kg. The analysis was performed under the perspective of the public health care system in Mexico. Tocilizumab acquisition cost, infusion fees and standard management of sJIA according to level of response were evaluated. Efficacy was defined in terms of the American College of Rheumatology Pediatric response criteria. Resource use and unit costs were gathered from local sources; efficacy was derived from two phase-3 clinical trials; increase in mortality and utility scores associated with level of response was based on literature. All costs are expressed in 2011 euros (€). **RESULTS:** A markedly higher proportion of patients achieved an ACRPedi70 response with TCZ in both children with the possibility of maintaining methotrexate (71% vs. 8%) and in those without that alternative (75% vs. 13%). The incremental cost per achieving an ACRPedi70 response was around 2400€ in both models. During base-case, the incremental cost per Quality-Adjusted Life Year (QALY) gained with TCZ ranged from 10,636€ to 10,681€. The gross domestic product per capita in Mexico during 2010 was estimated at 7048€. Results were robust to variation in all parameters. **CONCLUSIONS:** TCZ is a cost-effective option to treat sJIA in Mexico.

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ECONOMIC EVALUATION OF ETANERCEPT IN RHEUMATOID ARTHRITIS FROM THE PUBLIC PAYER PERSPECTIVE IN BRAZIL

Fernandes RA[1], Takemoto MLS[1], Tolentino ACM[1], Takemoto MMS[1], Santos PML[1], Mould JF[2]
[1]*ANOVA - Knowledge Translation, Rio de Janeiro, Brazil,* [2]*Pfizer, Inc., New York, NY, USA*

OBJECTIVES: Rheumatoid Arthritis (RA) leads to significant impact on management costs and patient's quality of life. In Brazil, costs associated to RA patient's care are 6.6-fold higher than general population, with greater resources consumption. Biologic treatment after two disease-modifying antirheumatic drugs fail is an alternative, but their high cost represents a challenge for decision makers. Currently, adalimumab, etanercept and infliximab are provided by the Brazilian public healthcare system. This study aims to assess the cost per responder of etanercept versus adalimumab and infliximab, for moderate to severe rheumatoid arthritis treatment from a public payer perspective in Brazil. **METHODS:** A decision-tree model was developed to simulate RA evolution after treatment with etanercept (basecase treatment), adalimumab or infliximab as first-line therapies and their associated costs over a 12-month time horizon. Therapy continuation or switch was evaluated at week 24. Effectiveness measure was ACR70 response. Direct medical costs included biologics, concomitant drugs, medical follow-up and adverse events management. Clinical response was extracted from published literature, while costs were collected from Brazilian public official databases. Probabilistic sensitivity analyses were performed through Monte Carlo Simulation second-order approach. **RESULTS:** In basecase analysis, 31.4%, 18.2% and 12.9% patients met ACR70 response for etanercept, adalimumab and infliximab. Annual costs per ACR70 responder were 147,147USD, 264,097USD and 327,632USD, respectively. Etanercept represented the least costly per ACR70 responder and the most effective alternative in all comparisons: 116,950USD and 180,485USD less than adalimumab and infliximab, respectively; 13.2% and 18.5% more patients met ACR70 response regarding adalimumab and infliximab. **CONCLUSIONS:** Etanercept exhibited incremental clinical effectiveness at a lower cost per ACR70 responders when compared to adalimumab and infliximab, from the Brazilian public health care system.

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ASSESSING THE COST EFFECTIVENESS OF BROADENING ACCESS TO ALENDRONATE FOR THE PREVENTION OF OSTEOPOROTIC FRACTURE IN AUSTRALIA

Tilden D[1], Jackson D[1], Tay-Teo K[2], Van Bavel J[2]
[1]*THEMA Consulting Pty Ltd, Pyrmont, NSW, Australia,* [2]*Merck Sharp & Dohme (Australia) Pty Limited, North Ryde, NSW, Australia*

OBJECTIVES: Alendronate is subsidised in Australia for patients with a prior fracture or those aged ≥70 with a bone mineral density (BMD) T-score of ≤-3.0. The objective of the analysis was to assess the cost-effectiveness of broadening access to alendronate to individuals aged ≥ 70 with BMD T–score ≤ –2.5. **METHODS:** A cost-utility analysis was constructed using a microsimulation model of a Markov process. The comparator was 'no alendronate' until such time that the individual became eligible for treatment due to a fracture or to BMD T-score reaching -3. The microsimulation transits patients through six health states of a Markov process with the health states defined by treatment status (not eligible, on treatment, discontinued treatment) and fracture status (with or without history of fracture).