assumptions are explored. Further assurances of internal validity include the replication of the model in another software. CONCLUSION: Approaches to model validation should be included as part of any publication. Budgetary and time allocation should take model validation into account given the increased importance placed on the outcomes of health economic models.

BIBLIOGRAPHIC REVIEW OF DISCRETE EVENTS SIMULATION STUDIES IN HEALTH TECHNOLOGY EVALUATION
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OBJECTIVES: The use of computational models to assess therapeutic alternatives has been growing in importance in the economic evaluation of health technologies and services during the last years, becoming a more relevant and helpful tool for decision making in health care. Until now, two types of models have been used: decision trees and Markov chains, nevertheless, they both show important limitations when addressing complex processes or pathologies, and that’s why interest in, and use of discrete event simulation (DES) is growing, specially in economic evaluation and medical decision making related journals. The objective of this study was to perform a bibliographic review of DES studies, and to evaluate their advantages and limitations compared with other broadly used decision analytic model techniques. METHODS: A structured bibliographic search using Medline, principally, was performed to search in the scientific literature the keywords: Health technology, computer simulation, economic evaluation models and discrete event simulation. A system of selection of the search based on authors peer reviews and expert criteria was established. RESULTS: Forty-two papers were selected using DES alone or combined with Markov chains and decision trees. The result reflects the increasing number of the DES in after 1998, specially in the last 5 years. A classification of the selected articles was performed. These classification revealed the use of secondary data in these model development. Studies come in a highest percentage from UK, USA, and Holland, the temporal perspective was from less than 1 up to 50 years; sensitivity analysis was performed in the mentioned studies and Simul8, Arena, MS Excel were the most frequent used softwares. CONCLUSION: The results reflect that the use and acceptance of DES is growing internationally in health technology and health care analysis, so it would be an useful tool to simulate some complicated system and processes.

MUSCULAR-SKELETAL DISORDERS—Cost Studies

DIRECT HEALTH COSTS OF TREATING PATIENTS WITH FIBROMYALGIA IN PRIMARY CARE SETTINGS (PCS) UNDER ROUTINE MEDICAL PRACTICE: A COST OF ILLNESS STUDY USING A CLAIM DATABASE IN SPAIN
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OBJECTIVES: To analyze the impact of PRO measurements on direct health costs in subjects with Fibromyalgia: a longitudinal retrospective primary care settings (PCS) claim database analysis
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OBJECTIVES: To analyze the effect of PRO measurements on longitudinal direct health costs when treating Fibromyalgia under routine medical practice at PCS. METHODS: Retrospective sub-analysis of subjects above 18-years, with Fibromyalgia according to CIE-10, included in a claim database (BSA), who received the point-administration of FIQ, EQ-5D and BPI questionnaires after 12-months of health resources utilization record and deriving total direct health costs. Resources included emergency visits, hospitalizations, complementary tests, drugs and medical visits occurred both at primary (PC) and specialized care (SC) level. RESULTS: One-thousand-eighty-one subjects [96.7% women, 54.2 (10.1) years] fulfilled CIE-10 criteria for Fibromyalgia amongst 63,526 subjects: 1.7%. Charlson index was no different in Fibromyalgia patients vs controls (the rest of sample analyzed), p = 0.212. After adjusting by age and sex, yearly total health costs per patient were €614 higher (+66%) on average in Fibromyalgia than in controls; €1,350 (95% CI: 1,341–1,760) vs. €937 (927–945), p < 0.0001. Both PC and SC annual costs were significantly higher in Fibro patients; mean per patient adjusted difference of €395 (276–513, p < 0.0001) and €219 (74–364, p = 0.003), respectively. Total annual drug costs were considerably higher in patients with Fibromyalgia; €591 (485–696) vs. €361 (356–366), p < 0.0001. Age correlated moderate but significantly with yearly PC, drug and total per patient health costs; r = 0.324, 0.325, and 0.278, respectively, p < 0.001 in all cases. CONCLUSION: Compared with controls, subjects with Fibromyalgia were associated to higher annual total direct health costs in the primary care setting. Drugs represented a considerable portion of health resources costs devoted to these patients. Age, but not sex, was associated with higher costs.
Severity of pain (BPI-item-3) was statistically associated with total annual health costs; €1235 (932), €1473 (1198) and €1950 (1391) for mild, moderate and severe pain respectively, p = 0.017. Walking (FIQ1g) and work/domestic (BPI5d) interference were positive predictors for per patient annual drug costs, while pain problems and 12-month health state change (EQ-5D items 4 and 6) were negative predictors (R2 = 0.283, p < 0.001). CONCLUSION: In the primary care setting, annual per patient total direct health cost of Fibromyalgia showed weak but statistically significant association with patient disease interference and severity of pain. Less drug costs could be associated with poorer outcomes in term of health state change and level of pain.

**OBESITY—Clinical Outcomes Studies**

**POB1**

IMPACT OF OBESITY UPON COSTS AND ANTIPSYCHOTIC DRUG USE IN THE ADULT POPULATION SEEN IN SPANISH PRIMARY CARE CENTERS

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OBJECTIVES: To describe the association between obesity and costs and use of antipsychotic drugs (APDs) in patients seen by seven Spanish primary care teams (PCTs), under usual medical practice. METHODS: A retrospective, multicenter study was made with patients receiving APD treatment during year 2005. Obesity was considered according to W.H.O. as a body mass index (BMI) > 30 kg/m2. Main measurements included APD consumption, sociodemographics, comorbidity/episodes, Charlson index (severity), and costs (semi-fixed and variable, visits, diagnostic/therapeutic procedures, referrals and drugs). Descriptive statistics, logistic regression model and analysis of covariance (ANCOVA) with Bonferroni correction were applied. RESULTS: A total of 42,437 patients (age: 50.9 ± 17.8 years, women: 59.9%) were included in the analysis. Obesity was present in 27.3% [CI: 26.9–27.7%], with a 1.3% receiving APDs (typical: 48.8%, atypical: 51.2%; p = NS). Patients with obesity showed higher annual average of episodes (7.0 ± 4.0 vs. 5.5 ± 3.6), visits (12.1 ± 9.8 vs. 9.1 ± 8.5) and severity (0.5 ± 0.7 vs. 0.3 ± 0.6), p < 0.001. In the logistic regression analysis, obesity was related to APD use (OR = 1.5; CI: 1.3–1.8), hypertension (OR = 2.4; CI: 2.2 2.5), diabetes (OR = 1.4; CI: 1.3–1.5) and dyslipidemia (OR = 1.3; CI: 1.2–1.4), p < 0.001 in all cases. After adjusting, BMI was slightly higher in subjects on APD; 27.8 kg/m2 vs. 27.4 kg/m2, p = 0.002. Mean crude and adjusted (age, gender and comorbidities) annual costs were significantly higher in obese patients than in non obese; €980.89 ± 1,467.49 vs. €637.64 ± 1,244.49, p < 0.001, and €810.88 vs. €693.79, p < 0.001 respectively. All components of per patient per year costs were higher in the group of obese patients, p < 0.0001. CONCLUSION: Obesity was associated with the use of APDs and the presence of hypertension, diabetes and dyslipidemia. No differences were found between using typical or atypical APDs. Obese patients presented more comorbidity, use of health resources and associated costs.

**OBESITY—Methods and Concepts**

**POB3**

A PROBABILISTIC BAYESIAN MARKOV MODEL IN WINBUGS FOR THE ECONOMIC EVALUATION OF THE TREATMENT WITH ORLISTAT OF ITALIAN OBESE PATIENTS

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OBJECTIVES: The WinBUGS software is a powerful tool to analyze data in the framework of the bayesian theory and has recently been shown useful in developing complex probabilistic Markov models. Despite some clear advantages, this technique has not been fully exploited in health economic evaluations. We developed a cost-utility and budget impact analysis of the use of orlistat in Italian obese patients through this innovative modelling approach. METHODS: A probabilistic Markov model has been developed to simulate outcomes of the obese Italian population after four years of orlistat treatment plus six years of follow-up. The efficacy of the treatment derives from the XENDOS study. The model integrates a Framingham Heart Study-based algorithm to estimate cardiovascular risk. The