popularized with relevant cost, adherence and epidemiological data for Belgium from a health care perspective and the results were presented in cost (€2009) per quality-adjusted life-year (QALY) gained. Analyses were performed in populations (over 60 years) where osteoporosis medications are currently reimbursed in many European countries, i.e. bone mineral density T-score below or equal to 2.5 or presence of prevalent vertebral fracture. Univariate and probabilistic sensitivity analyses were conducted to assess the robustness of the results. RESULTS: The cost-effectiveness of denosumab compared with generic alendronate was estimated at €38,873, €20,690 and €9,613 per QALY for women with T-score ≤−2.5 aged 60, 70 and 80 years, respectively. The equivalent values were €17,856, €18,764 and €17,309 per QALY for women with prevalent vertebral fractures. Discount rates, fracture risk and patient’s adherence to generic alendronate were found to be particularly sensitive when varied within the model. At 70 years of age, probabilistic sensitivity analyses showed that the probability of the ICERs remaining below €40,000 is 84% in women with prevalent vertebral fracture and 74% in those with T-score ≤−2.5, confirming the cost-effectiveness of denosumab. CONCLUSIONS: This study suggests that denosumab is a cost-effective strategy (cost/QALY gained ≤€40,000) compared with generic alendronate for the treatment of postmenopausal Belgian osteoporotic women, aged 60 years and above.

Osteoporosis Fractures in Germany: A Modelling Approach

**OBJECTIVES:** Current osteoporosis therapies can reduce the risk of fractures and thus costs, but adherence to these medications is often poor. We estimated yearly potential savings in fracture-related costs from improved adherence to osteoporosis therapies in Germany, from a societal perspective. METHODS: The model was a deterministic cohort model estimating annual treatments and outcomes for German women aged ≥50 years in 2010 (n = 17,689,849), by 15 year cohorts. Demographic parameters were drawn from government databases, medication prescription share from industry databases, fracture incidence (hip, clinical vertebral, and non-hip, non-vertebral (NHNV)), medication adherence (medication possession ratio MPR, one year intervals) and efficacy from published literature. As a base case we estimated 4.2% treated (n = 743,313) with oral bisphosphonates (94.6%), strontium (2.7%) and alendronate (2.7%) (n = 537,493) respectively. Fracture-related costs (excluding medication costs) included direct medical, long-term nursing care, and work loss. The model parameters are adjustable, allowing real time calculation of outcomes. We estimated current costs with 54% effectively adherent and 100% effectively adherent. RESULTS: The model calculated total fracture-related costs for all patients in 2010 at €4.4 billion (with 69.6% for direct medical costs, 20.2% for long-term nursing care, and 10.2% for work loss). For the estimated 4.2% of treated patients, the model calculated total fracture-related costs at €1894 million. Increasing the percentage of patients with effective adherence from 54% to 100% decreased costs for hip (16.2%), vertebral (24.4%) and NHNV fractures (6.3%). CONCLUSIONS: Adjusted parameters allow users to calculate yearly fracture-related costs and savings for different economic perspectives and decision options. According to one run using the current model, achieving full adherence to medication among women currently treated for osteoporosis in Germany would reduce fractures, and cut down annual fracture related costs by €27.8 million (15.1%).

**IMPACT OF OBESITY IN WORKING ADULTS WITH ARTHRITIS IN TERMS OF MEDICAL AND PRODUCTIVITY COSTS**

**OBJECTIVES:** To measure the impact of obesity on annual medical and productivity costs among working U.S. adults with arthritis. METHODS: We conducted a cross sectional study using Medical Expenditure Panel Survey data from 2003–2007. Working adults with arthritis (18–64 years old) were selected if they did not have pregnancy, malignancy, kidney dialysis, immunodeficiency, low body mass index (BMI ≥18.5 kg/m²), or unemployment status. Patients with arthritis were identified by ICD-9 codes of 714–715 or via patient self-report. Obese and normal-weight were defined as BMI of ≥25 kg/m² and BMI of 18.5–24.9 kg/m², respectively. Loss of productivity was estimated by loss of workdays due to illness or injury and standard hourly wage by occupation. Medical costs were estimated using a generalized linear model with a log link function and gamma distribution. Costs of productivity loss were calculated using a two-part model to adjust for patients with zero costs. Using Oaxaca decomposition, differences in treatment costs between obese and normal-weight patients were decomposed into two parts: a) differences in characteristics (endowments) across groups, and b) differences between obese and normal parameters (coefficients). Costs attributable to obesity were defined as the costs by coefficients component. All costs were converted to 2009 U.S. dollars using price indices. RESULTS: Among the 7,345 working adults with arthritis, prevalence of obesity and normal-weight was 24.8% vs. 40.7%, respectively. The difference in medical costs between the groups was US$2,280 (95% CI: US$1,934–2,625) due to endowments and US$379 (95% CI: US$336–420) due to coefficients component. Productivity loss costs in the obese patients were higher, at US$646 (95% CI: US$41–51) due to endowments and US$441 (95% CI: US$435–447) due to coefficients component. CONCLUSIONS: Use of the Oaxaca decomposition method suggested that the economic burden, particularly productivity loss costs in patients with arthritis was substantial, adjusting for characteristics across groups.