with headache symptoms (16.97 ± 0.54 vs. 5.38 ± 0.39, p < 0.0001). CM also missed more days due to illnesses other than headache than EM participants (13.66 ± 1.98 vs. 9.33 ± 1.42, p < 0.01). CM and EM reported working at half of their full effectiveness with headache symptoms (p < 0.05). CM reported experiencing more impairment in work ability or activity than EM (CM = 31.1%, EM = 24.4%), or requiring more bed rest (CM = 33.5%, EM = 26.2%) when experiencing severe headaches. CONCLUSIONS: Migraine adversely affected presenteeism and increased absenteeism of migraine sufferers, particularly among those with CM, who missed more days and worked more days with headache than EM.

COSTS OF ILLNESS IN PARKINSON’S DISEASE IN SIX EUROPEAN COUNTRIES
Philips-University, Marburg, Germany
OBJECTIVES: To evaluate the direct and indirect costs of Parkinson’s Disease (PD) in a survey of five European countries and Russia. So far, cost-of-illness (COI) studies on PD have been conducted in some European countries only, none in Austria, Czech Republic, Portugal and Russia. The prevalence of PD in Europe varies between 115 and 221 per 100,000, due to aging of population the number of persons affected is expected to double within the next 25 years. METHODS: Between 2003—2005 about 110 patients of PD were recruited per study center. Clinical status (Hoehn & Yahr stage, Unified Parkinson’s Disease Rating Scale) was evaluated. Economic data were collected over a 6 months period using the “bottom-up” approach. Indirect costs were calculated by the human capital approach. Informal care was monetary valued. RESULTS: The mean costs per patient ranged from €2620 to €9812 for the 6-months observation period. Direct costs made about 60% to 70%, indirect costs made 30% to 40% of total costs. Forty-seven percent to 92% of direct costs were on the account of the national health insurance systems. Patients’ co-payments constituted up to 14% of direct costs. Informal care generally was the prevalent form of care for PD patients. In half of the participating countries it was the major source of expenditure. CONCLUSIONS: This is the first observational study on the burden of PD across European countries and Russia. Costs of PD across Europe vary considerably. Reasons are multiple; differences in prices, health systems and traditions are some. PD represents a major burden on the individual, family, health services and society in Europe, especially in Eastern European countries. A major cost factor is the cost for care, which has enormous importance due to demographic development and extension of life expectancy.

THE POTENTIAL ECONOMIC IMPACT OF GENERIC SUBSTITUTION OF TOPIRAMATE ON HEALTH CARE COSTS IN THE G4 EUROPEAN COUNTRIES
Paradis PE1, Latremouille-Viu D1, Moore Y1, Mishagina N1, Lafuette MH1, Lefebvre P1, Gaude M1, Duh MS1
1Groupe d’analyse, Ltee, Montreal, QC, Canada, 2Janssen-Cilag, Neuss, Germany, 3Avery Group, Inc, Boston, MA, USA
OBJECTIVES: To examine the economic impact of generic substitution of the anti-epileptic drug (AED) Topiramate in Canada; and convert observed Canadian costs into the settings of France, Germany, Italy and the UK (UK). METHODS: Retrospective health claims from Quebec’s provincial health plan (RAMQ) between January 2006 and September 2008 were analyzed. Patients with epilepsy (ICD-9: 345, 780.3, 780.39) and ≥2 topiramate dispensings were selected. Patient-level health care utilization and costs in Canada were calculated during mutually-exclusive periods of brand versus generic-use periods (adjusted cost differences per person-year: IC9D: 345, 780.3 or 780.39).2nd topiramate (Topamax®) dispensings were selected. Patient-level health care utilization and costs in Canada were calculated during mutually-exclusive periods of brand versus generic use of topiramate. Annualized Canadian health care costs were converted into a German setting (#2007/person-year) using applying purchase power parities, service-use ratios and exchange rates. Using market-level sales, branded and generic topiramate utilization were forecasted for 12 months following expected generic entry (September 2009-September 2010) using autoregressive and panel-data regression models. Non-parametric bootstrap procedure was used to determine statistical significance for the cost measures. Budgetary consequences for sick funds, individual and private payers were assessed. RESULTS: After adjusting for covariates, periods of generic topiramate use were associated with significant increases in pharmacy dispensions (other AEDs: +6%, non-AEDs: +31%, p < 0.001), a 17% increase in hospitalizations and outpatient visits. Increased total cost is expected to outweigh the benefit of reduced drug costs. Higher for generic relative to brand periods in Germany (adjusted cost difference per person-year [95% CI]: €710 [€419-€1283]; p < 0.001). Assuming mandatory generic substitution for all patients, predicted system-wide increase in total adjusted health care costs would be 23.2% one year after generic entry. This impact would be evenly distributed among payers. CONCLUSIONS: Generic entry of topiramate in Germany would represent a trade-off between reduced generic drug expenditures and increased health care costs due to higher AED and non-AED spending, as well as increased hospitalizations and outpatient visits. Increased total cost is expected to outweigh the benefit of reduced drug costs.

THE COST-EFFECTIVENESS OF DEEP BRAIN STIMULATION IN PARKINSON’S DISEASE PATIENTS
Bleijenbergh R1, Schut J1, de Keijzer I1, van de Putte S2, de Zeeuw D1, de Graaf R3, Dodel R1
1Philips-University, Marburg, Germany, 2UMIT University of Health Sciences, Medical Informatics, and Technology, 3I, Austria
OBJECTIVES: In addition to medical treatment, deep brain stimulation (DBS) has become an alternative therapeutic option in advanced Parkinson’s disease, especially for motor complications such as dyskinesias or motor fluctuations. High initial costs of surgery and subsequent time-consuming maintenance procedures may be traded off by long-term gains in quality of life (QoL). We compared conventional medication treatment with DBS. METHODS: We present a lifetime Markov model for Parkinson’s disease, comparing deep brain stimulation vs. best medical treatment and estimating the impact on health-related quality of life. HoQoL was measured by the EQ-5D and utility (QALY) for the societal perspective in Germany. Both were discounted (-3%). Data on DBS efficacy and adverse events were taken from clinical studies and published reports or meta-analyses. Key assumptions on the surgery procedure and its durability, its impact on cost and HoQoL, mortality, prevalence of motor complications as well as stage transition probabilities and the discount rate were investigated by one- and two-way sensitivity analyses. RESULTS: The incremental cost-effective- ness ratio (ICER) for DBS was €42,183 per QALY gained. Incremental DBS costs were due to cost for surgery and subsequent battery change. HoQoL was improved and motor complications were reduced. The following variables had most impact on sensitivity analyses: utility improvement under DBS, drug and surgery cost, progression rates, and discount rate leading to varying ICERs between 20,064 and €58,149/QALY (the latter due to extreme and unlikely parameter combinations). CONCLUSIONS: Based on our decision analysis using current guidelines, DBS is likely to be cost-effective compared with other well-accepted health care technologies. We suggest to adopt DBS for patients with high drug cost or severe motor complications.
and succinylcholine with 57.89 and 20,37, meaning a cost per LYG of ROC vs succinylcholine of nylcholine based regimens. In the rapid sequence intubation model, ROC with higher life years gained and less costs than the intubation with atracurium or native. Clinical data was obtained from the SmPC of each drug and form secondary}

**METHODS**

The effectiveness of sugammadex in the management of patients with unanticipated difficult intubation or for the management of patients undergoing rapid sequence intubation. Sugammadex (SGX) is a modified L-β-cyclodextrin that has been recently marketed in Spain for the reversal of neuromuscular block induced by rocuronium (ROC) and vecuronium. The objective of this study was to evaluate the cost-effectiveness of sugammadex in the management of patients with unanticipated difficult intubation and patients needing rapid sequence intubation from the Spanish National Health System perspective. METHODS: Two decision-analytic models were developed to assess the average per patient treatment costs ($2009), life-years gained, and incremental cost per life-year gained of ROC + SGX vs. suxamethonium in ROC needing rapid sequence intubation and ROC + SGX vs. all other neuromuscular blocking agents in the management of the unanticipated difficult intubation patients. The models simulate the probability of not being able to intubate, the probability of experiencing an adverse event, and the direct costs produced by each treatment alternative. Clinical data was obtained from the SmPC of each drug and form secondary sources. Costs were obtained for SUokos database. All data was validated by a focus group in order to adapt the model to the Spanish clinical practice. RESULTS: In the management of unanticipated difficult intubation patients, ROC+SGX is associated with higher life years gained and less costs than the intubation with atracurium or cisatracurium and with a mean cost per life year gained (LYG) of $11,077 vs. succinylcholine based regimens. In the rapid sequence intubation model, ROC+SGX is associated with mean expected costs of $58,111 and mean expected life years of 20.38, and by altering the baseline characteristics. Donepezil was cost-saving in most of these scenarios and was cost-effective at a threshold of $1,838 per quality-adjusted life-year (QALY). One-way and probabilistic sensitivity analyses were performed. Costs and outcomes were discounted at 3% per year. RESULTS: Over 5 years, first-line treatment with rocuronium was cost saving and more effective when compared to branded DAs and levodopa. Rasagiline was cost-effective versus generic ropinirole at $1,838 per quality-adjusted life-year (QALY): incremental costs +$239 and incremental QALYs +0.13. After five years compared to a DA, 23% and 50% fewer patients who initiated treatment with rasagiline were taking levodopa and experiencing dyskinesias respectively. Compared to first-line levodopa, 12% and 69% fewer patients starting rasagiline were taking levodopa and experiencing dyskinesias respectively. CONCLUSIONS: Initiating early Parkinson’s disease therapy with rasagiline delayed treatment with levodopa, reduced dyskinesias, and appears to be cost-savings or cost-effective when compared to initiating therapy with other first-line therapies.

**RESULTS**

: When hydrogel was used, the probability of sugammadex dominance and 100% of being cost-effective at a threshold of $239 and incremental QALYs +0.13. After five years compared to a DA, 23% and 50% fewer patients who initiated treatment with rasagiline were taking levodopa and experiencing dyskinesias respectively. Compared to first-line levodopa, 12% and 69% fewer patients starting rasagiline were taking levodopa and experiencing dyskinesias respectively. CONCLUSIONS: Initiating early Parkinson’s disease therapy with rasagiline delayed treatment with levodopa, reduced dyskinesias, and appears to be cost-savings or cost-effective when compared to initiating therapy with other first-line therapies.

**METHODS**

were used to assess second-order uncertainty. RESULTS: NMB reversal with sugammadex was estimated to result in a per patient gain of 2.25 LYG (95% CI [1.78, 2.74]) and a decrease of $1,509 (95%CI [1.42, 1.73]) on total cost when compared to the neostigmine-atropine alternative, thereby resulting in a cost-saving strategy. Probabilistic sensitivity analysis revealed a 32.6% probability of sugammadex dominance and 100% of being cost-effective at a threshold of $1,509. CONCLUSIONS: Neuromuscular blockade reversal with sugammadex may be considered a cost-effective strategy in comparison to neostigmine-atropine.

**RESULTS**

Differences concerning the number of ambulatory consultations (LTG 28 vs. LEV 26) and by altering the baseline characteristics. Donepezil was cost-saving in most of these scenarios and was cost-effective at a threshold of $1,838 per quality-adjusted life-year (QALY). Sensitivity analyses were carried to examine the impact of the period under which treatment costs were incurred and by altering the baseline characteristics. Donepezil was cost-saving in most of these alternative scenarios and cost-effective in all of them. CONCLUSIONS: Using new data on costs and utilities in AD, donepezil treatment in mild-to-moderate AD is cost-saving compared to placebo. Treatment delays progression into severe AD, ADL-dependence and institutionalization and thereby leads to QALY gains.

**METHODS**

OBJECTIVES: To assess the cost-effectiveness of sugammadex for reversal of neuromuscular blockade (NMB) in Portuguese hospitals, using a clinical decision model. METHODS: We compared sugammadex 2.0 mg/kg with neostigmine atropine 0.375 mg. Clinical efficacy and safety data were obtained from both published literature and phase III randomized clinical trial supporting the need for routine reversal of rocuronium or vecuronium NMB. Clinical events considered were drug adverse reactions and post-operative residual curarization. Risk of death within hospitalization, duration and cost of hospitalization were estimated from hospitalization data in Portuguese public hospitals during 2007, with at least one surgical procedure. Only direct costs were considered (drugs, medical visits, side effect treatments and monitoring). Effectiveness was measured in life years (LY). Premature death accounted to LY in a per patient gain of 2.25 LY (95%CI [1.78, 2.74]) and a decrease of $1,509 (95%CI [1.42, 1.73]) on total cost when compared to the neostigmine-atropine alternative, thereby resulting in a cost-saving strategy. Probabilistic sensitivity analysis revealed a 32.6% probability of sugammadex dominance and 100% of being cost-effective at a threshold of $1,509. CONCLUSIONS: Neuromuscular blockade reversal with sugammadex may be considered a cost-effective strategy in comparison to neostigmine-atropine.