with PD. Compared to drug treatment, however, the expenditures associated with DBS-STN are increased when only direct costs are considered over a one year horizon.

THE IMPACT OF DRUG INTERACTIONS ON HOSPITALIZATION RATES FOR ALZHEIMER'S PATIENTS TREATED WITH DONEPEZIL

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OBJECTIVES: to determine whether Alzheimer's disease patients prescribed donepezil concurrently with an interacting drug will have higher hospitalization rates than those not on donepezil.
METHODS: 1999 MEDSTAT Marketscan data was used to obtain subject information. Of 2955 Alzheimer's patients included in this study, 1674 received donepezil and 1281 patients did not. Mean patient age was 79.6 years and 37.9 percent of these patients were male. Multivariable logistic regression was used to isolate the impact of drug interactions with donepezil on the propensity to incur a hospitalization.
RESULTS: Each of ten interacting drugs increased the probability of hospitalization when taken with donepezil. These interacting effects were particularly large for ranitidine, which increased hospitalization by 22%, haloperidol by 18%, diltiazem by 9%, and ciprofloxacin by 9%. These interactions raised the expected costs of hospitalization substantially as well.
CONCLUSION: This research strongly suggests that drug interactions with donepezil pose significant risk for hospitalization in Alzheimer's patients.

THE COST OF SECONDARY STROKE IN POLAND

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OBJECTIVE: The total cost of secondary stroke has not been well established. The high risk of stroke recurrence, reaching almost 50% in the first five years following primary stroke, can be substantially reduced with effective preventive health-care programs. Thus secondary prevention can produce substantial clinical benefits and economic savings. We evaluated health-care resource use and indirect costs in a sample population of patients after secondary stroke.
METHODS: 2nd Neurological Department clinical database was reviewed and 105 secondary stroke patients evaluated. Life expectancy was estimated using the Kaplan-Meier method along with a parametric hazard function estimator. Survivors were surveyed on health-care re-

source consumption within the previous year and indirect costs including care time at home and employment status. Average total cost and 95% bootstrap confidence intervals were calculated. This survey was aimed at evaluating patient's eventual disability with the Barthel ADL Index. The relationship between ADL score and the total cost of secondary stroke was determined.
RESULTS: Life expectancy for a Polish patient experiencing a secondary stroke was found to be 3.9 years (95%CI: 2.25 - 5.71). Average lifetime costs for secondary stroke totaled 52 181 USD (95%CI: 43536–61602) (PPP 2000). The direct costs were estimated at 24,099 USD and productivity loss due to morbidity amounted to 34.3% of the total indirect cost, while the remaining 65.7% corresponded to patient home-care costs. It was found that the total cost decreased as ADL increased.
CONCLUSION: The costs of secondary stroke are substantial in Poland mainly due to indirect costs. Studies of the cost of primary stroke are needed to extract the precis cost of secondary stroke. Effective secondary prevention can produce economic savings as a result of limiting the burden of secondary stroke.

ASSESSING THE COSTS OF PARKINSON'S DISEASE IN GERMANY

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OBJECTIVE: To evaluate the direct costs due to Parkinson's Disease (PD) in Germany.
METHODS: Using a prospective study design we evaluate the health-care utilization and health-related quality of life of 160 patients with PD in different Hoehn and Yahr stages (HY) over a two year period in Germany (2000–2002). Here we present a subanalysis of consecutive 34 patients (mean age: 65.2 ± 10.5) observed for a three-month period. Costs were derived from different German medical economic resources and determined from the perspective of the health care provider.
RESULTS: The mean 3-month direct costs were DM 11300. DM 10000 were costs for medical treatment and DM 1300 for non-medical services (e.g. social services, meals on wheels, etc.). The drug costs were the major cost-factor with DM 8940, mainly for the use of newer compounds like dopamine agonists and COMT-inhibitors. The use of subcutaneous apomorphine in advanced stages of the disease considerably increased the costs of treatment (DM 6400). Hospitalization, physician care and vindication amounted to DM 1060. Direct costs increased depending on the extent of the disease (HY I: DM 2080, HY V: DM 8840). Further cost-driving factors include the occurrence of dyskinesias and motor fluctuations. The drug and hospitalization costs are espe-

cially influenced by the occurrence of motor complications.

CONCLUSIONS: Similar to earlier studies (Dodel et al., 1995), an increase in costs was calculated depending on HY stage and the occurrence of motor complications. Compared to the medical costs, the non-medical services contribute only in a small proportion to the overall direct costs. The major cost factor is the drug treatment of Parkinson's disease. The greatest proportion of these costs is for drugs introduced in the last five years.

ESTIMATION OF THE COSTS OF MULTIPLE SCLEROSIS BASED ON 157 FRENCH PATIENTS

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OBJECTIVES: To assess the costs of multiple sclerosis (MS) from a sample of 157 French patients followed during 2 years (1 year retrospectively, 1 year prospectively) and consecutively included from June 1995 to December 1996. Costs included health-care consumption, lost earnings and payment of short-term disability benefits by Social Security. METHODS: At the time of inclusion, the costs of MS were assessed by retrospective interviews covering a one-year period (health-care costs and sick leaves) or since the last consequence of MS on work (loss of earnings). The retrospective data concerning both the health-care consumption and sick leaves were completed with prospective data collected by means of a questionnaire during the three-months following inclusion. Loss of earnings was discounted at 5%. Cost estimates were crossed with medical data at inclusion, and econometric analyses were performed to assess explanatory variables of the health-care costs. RESULTS: Baseline statistics were: mean age, 42.9; women, 66%; secondary progression, 37%; primary progression, 11%; median EDSS score, 5.25. Average one-year retrospective health-care costs (N = 157) amounted to US$7,790.38 (+/− US$9,713.88), with 75.4% going towards hospital costs and 24.6% to ambulatory costs. Main cost items were hospital stay in the neurological ward (29.4% of the total cost) and physiotherapy (15.4%). Three-month prospective healthcare costs (N=101) amounted to US$1,813 (+/− US$2,056), with 56.5% spent on hospital costs. Physiotherapy and drugs were the main ambulatory cost items, accounting for 40.0% and 24.6% respectively of the total prospective ambulatory costs. CONCLUSION: The econometric analysis showed that the health-care costs were positively correlated with the number of years of schooling, the number of relapses, the EDSS score and the Kurtzke sphincter subscore at inclusion, negatively correlated with the Kurtzke sight subscore at inclusion, and were not affected by the form of MS.

IMPLICATIONS OF PRESCRIBING FOR PATIENTS WITH RELAPSING-REMITTING MULTIPLE SCLEROSIS (RRMS): INTRODUCING A TREATMENT ALGORITHM FOR GLATIRAMER ACETATE (COPAXONE)

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MS affects approximately 85,000 people in the UK, of which 25% to 40% will be RRMS patients. Treatment costs fall largely on the NHS, but savings on social and personal care will accrue if dependency is deferred. Simplistic treatment algorithms based on crude prevalence data may overestimate the number of patients and cost of treatment. OBJECTIVE: Present a treatment algorithm providing a more realistic estimate of the number of RRMS patients eligible for therapy, and thereby, an improved estimate of budget implications of prescribing. METHODS: Published prevalence data indicate the number of patients for whom treatment is theoretically eligible is 25 to 71 per 100,000 population (mid-point 48). However, using published literature and feedback from expert clinicians, we show that these numbers can be reduced to reflect those patients who will refuse injectable therapy, are too young (below 18), have not relapsed in the previous two years or are non-ambulatory. RESULTS: We present an algorithm based on glatiramer acetate, given the published evidence of long-term efficacy and the significantly lower price (almost 30% cheaper than the beta interferons in the UK). Using published data to quantify the proportions of ineligible patients, the original target population of 48 is reduced to 23. Depending on the proportion of these patients that receives glatiramer acetate, e.g., 20%, 40%, or 60%, the budget provision per 100,000 population would be £33,250, £59,850, or £93,100 respectively, based on direct acquisition cost of therapy alone versus best supportive care alone. CONCLUSION: The algorithm provides a tool for determining a more realistic estimate of the RRMS population eligible for treatment, and the direct costs to the NHS. Given that NHS and Social Care budgets will increasingly be managed jointly, budgetary impact is mitigated if wider benefits such as deferred dependency and ability to continue employment are taken into account.

IMPACT OF RIVASTIGMINE ON ANTIPSYCHOTIC UTILIZATION AND COST IN ALZHEIMER'S DISEASE

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