

AD shows a potential budget impact of approximately Brz3,9 million (US\$1,8 million) for 5 consecutive years. **CONCLUSIONS:** The use of Souvenaid®, a new approach in the management of mild AD, can benefit approximately 100,000 patients with AD in 5 years and it is estimated to have a relatively small budget impact to SUS, since the projections of cost of disease for the same period are Brz154 million and potential budget impact of approximately Brz3,9 million.

PND15

DIRECT MEDICAL COSTS RELATED TO PARKINSON'S DISEASE

Rodriguez Violante M¹, Cervantes Arriaga A¹, Soto Molina H², Díaz Martínez JP³, Pizarro Castellanos M⁴

¹Instituto Nacional de Neurología y Neurocirugía, México, Mexico City, Mexico, ²Universidad Autónoma Metropolitana, Mexico City, Mexico, ³HS Estudios Farmacoeconómicos, Mexico City, Mexico, ⁴Hospital Infantil de México Federico Gómez, Mexico City, Mexico

OBJECTIVES: Parkinson's disease is a neurodegenerative disorder with an estimated incidence of 40-50 cases per 100,000 inhabitants per year. In this paper, we set out to estimate the direct medical costs of Parkinson's disease. In addition, direct medical costs according to age, gender, socio-economic level, severity and educational attainment were evaluated. **METHODS:** A partial economic evaluation was performed in order to analyse the direct medical costs related to Parkinson's disease. The analysis took the perspective of the National Institute of Neurology and Neurosurgery (INNN) for the first semester of 2013, including outpatient clinic visits, medications, medical procedures and laboratory tests, these costs were provided from the INNN's financial management. A Mexican retrospective study of patients having Parkinson's disease from the INNN provided information on severity, baseline characteristics and socio-demographic characteristics. **RESULTS:** Mean first semester direct medical costs per patient on Parkinson's disease were US\$2 366 in 2013. When analyzing cost distribution, no differences were found in the direct medical costs for the modality groups. In severity and gender, costs hadn't statistical significance (p -value > .05). On the other hand, costs by grouped age, grouped socio-economic level and educational attainment were statistically different (p -value < .001). Finally, in the generalized linear model analysis, direct medical costs were only predicted by grouped socio-economic level; age, gender, severity or years of schooling weren't statistically significant in the model. **CONCLUSIONS:** The first semester direct medical costs per patient on Parkinson's disease in this study were US\$2 366 in 2013. Total direct medical costs by grouped age and educational attainment were statistically different for patients having Parkinson's disease. In a multivariate analysis, only socio-economic level predicted a higher direct medical cost.

PND16

COST OF MANAGING PARKINSON'S DISEASE IN CHINA

Low W¹, Azmi S¹, Hansen K², François C², Milea D³

¹Azmi Burhani Consulting, Petaling Jaya, Malaysia, ²Lundbeck SAS, France, ³Lundbeck Pte Ltd, Singapore

OBJECTIVES: To review studies that investigated the direct and indirect costs of care for Parkinson's disease (PD) in China. **METHODS:** A structured literature review on published articles in both English and Mandarin languages was conducted. Literature search was conducted using PubMed, Cochrane, WAN FANG, and VIP databases. Articles published between 2000 and 2013 were selected. The inclusion criteria included studies on Chinese population based in China only and studies that reported direct or indirect cost of PD treatment, management as well as economic burden of PD. Four reviewers (two for each language) independently selected and reviewed the articles. Subjective quality assessment of the selected articles were performed. Direct cost included cost of outpatient consultation, hospitalisation, medication, rehabilitation and the use of prescribed traditional Chinese medicine; whereas indirect cost included home care, transport, home support equipment, supplement use, and productivity loss. **RESULTS:** Eleven articles (10 Mandarin and 1 English) were selected and reviewed qualitatively. Approximately 80% of the articles reviewed received an average grade in terms of study quality. The average direct and indirect cost of managing PD in China reported ranged from RMB 7,000 (USD 1,157) to RMB 15,000 (USD 2,479) per annum. The reported direct cost of managing PD ranged from RMB 1,600 (USD 265) to RMB 13,000 (USD 2,149); whereas the indirect cost reported ranged from RMB 2,970 (USD 491) to RMB 13,200 (USD 2,182). Seven out of 11 articles reported cost-effectiveness results. Three papers from the same authors had reported the main factors affecting the overall economic burden of PD. **CONCLUSIONS:** Various combination therapy involving levodopa had higher direct costs but reduced indirect costs compared to levodopa monotherapy. In general, the reported indirect cost is higher than direct cost of PD management in China.

PND17

USE OF THE INCOME MULTIPLIER EFFECT TO ACHIEVE MORE ACCURATE ESTIMATE OF THE INDIRECT BURDEN OF ALZHEIMER'S

Sigmundsson B, Brown D, Koppenhafer L, Ghouse R, Haines P

Caro Consulting, Marlow, UK

OBJECTIVES: To estimate the indirect burden of Alzheimer's disease in US. **METHODS:** Applying the economic concept of the multiplier effect – the degree to which a change in aggregate demand may have a greater effect on national income – to the analysis of the indirect cost of Alzheimer's disease can provide valuable insights to the societal burden of the disease. US demography forecasts and disease incidence rates were used to develop a Markov model for the Alzheimer's patient population. Estimates for the indirect cost of Alzheimer's were derived using key variables, such as hours spent on care per patient, severity of the illness, percentage in need of care by disease severity, and salaries. **RESULTS:** The model predicted that the indirect burden of Alzheimer's will increase by 85% from 2015-2020, by 33% from 2020 to 2025 and by 17% from 2025-2030. The main cost drivers in the model are the unpaid work by carers and lost revenues due to mild Alzheimer's patients having to leave the labor market. **CONCLUSIONS:** By employing the multiplier model it was determined that the indirect costs attributed to Alzheimer's disease have a significant impact on the total burden of the disease, due in part to

the multiplier effect. This novel approach highlighted the unique characteristics of Alzheimer's disease with particular focus on the additional costs and societal impact stemming from caring for a patient with Alzheimer's. Future cost effectiveness studies need to consider these additional impacts when quantifying their results and potential benefit to the health care system. Approaches to modelling long term disease impact must therefore be expanded to consider the wide reaching societal impact of Alzheimer's disease to the direct health care costs.

PND18

TRENDS IN ANTI-EPILEPTIC ADJUNCTIVE THERAPY UTILIZATION AND COSTS FROM 2006-2011: AN ANALYSIS OF A LARGE ADMINISTRATIVE CLAIMS DATABASE

Veletz FE¹, Menzin J², Munsell M², Freaun M²

¹Sunovion Pharmaceuticals Inc., Marlborough, MA, USA, ²Boston Health Economics, Inc., Waltham, MA, USA

OBJECTIVES: To evaluate patterns of adjunctive therapy with anti-epileptic drugs (AED) and AED-specific pharmacy costs among patients with epilepsy over a six-year time period (2006-2011). **METHODS:** Study patients were identified from the 2006-2011 PharMetrics Plus Database. Separate patient cohorts were created for each year of analysis. Patients ≥ 18 years of age with ≥ 2 claims for epilepsy (ICD-9-CM 345.XX) who were continuously eligible for the entire calendar year were selected. Demographic characteristics, proportion of patients with adjunctive AED therapy (defined as a ≥ 60 day overlap in supply for two different AEDs) and AED pharmacy costs were evaluated for each calendar year. Overall adjunctive AED therapy utilization was further stratified by AED generic/brand status using the following categories: adjunctive therapy with two generic AEDs, two branded AEDs, or one generic and one branded AED. AEDs were identified and categorized based on NDC codes indicative of a generic/branded therapy for each year. **RESULTS:** Patients meeting cohort selection criteria varied for each year of analysis, ranging from 28,013 to 61,444 (mean age 44.6-46.3 years). The proportion of patients on adjunctive AED therapy stayed relatively constant over the analysis period, increasing only slightly over time (2006: 21.2%, 2007: 24.1%, 2008: 23.9%, 2009: 23.9%, 2010: 24.6%, 2011: 24.7%). Adjunctive generic AED therapy utilization approximately doubled over the analysis period (2006: 11.5%, 2011: 21.7%), while branded therapy decreased 5-fold (2006: 3.1%, 2011: 0.6%) and generic/branded decreased by >50% (2006: 11.1%, 2011: 4.9%) adjunctive AED therapy decreased (all $P < 0.01$). Over the six-year analysis period, mean AED pharmacy costs among patients with epilepsy on any adjunctive AED therapy decreased by 7.6% (2006: \$4,090, 2011: \$3,778; $P < 0.01$). **CONCLUSIONS:** In this study, a doubling in the utilization of generic drugs over a six-year period was associated with a 7.6% decrease in pharmacy cost.

PND19

AGGRESSIVE NATALIZUMAB TREATMENT FOR JC VIRUS-NEGATIVE RELAPSING-REMITTING MULTIPLE SCLEROSIS? COST-EFFECTIVENESS OF FIRST-LINE VERSUS SECOND-LINE NATALIZUMAB TREATMENT

McQueen RB¹, Nair KV², Vollmer TL³, Campbell JD¹

¹University of Colorado Anschutz Medical Campus, Aurora, CO, USA, ²University of Colorado Anschutz Medical Campus, School of Pharmacy, Aurora, CO, USA, ³University of Colorado Anschutz Medical Campus, Department of Neurology, Aurora, CO, USA

OBJECTIVES: Because of the risk of progressive multifocal leukoencephalopathy (PML), natalizumab is generally recommended as second-line treatment for relapsing-remitting multiple sclerosis (RRMS) patients. For those negative for anti-JC virus antibodies, the natalizumab associated risk of PML is low. The objective was to estimate the cost-effectiveness of first-line natalizumab versus second-line natalizumab treatment (i.e., initiate glatiramer acetate (GA) then switch to natalizumab) for RRMS patients negative for anti-JC virus antibodies. **METHODS:** We used a cohort simulation model to estimate the 20-year costs and outcomes of first- and second-line natalizumab treatment. Model inputs included published natural history progressions of the Expanded Disability Status Scale (EDSS), treatment effects from randomized controlled trials on disease progression and relapse rates, risk of PML, and utilities. We used the PharMetrics Plus claims database for total costs, switching and discontinuation rates and their associated costs (i.e., first-line treatment with GA then switch or discontinue). Outputs for the average patient, discounted at 3% per annum, were quality-adjusted life years (QALYs), costs in 2012 US dollars, and incremental cost-effectiveness ratios (ICERs). **RESULTS:** Compared to natalizumab as second-line treatment after switching from GA, first-line natalizumab treatment was associated with 0.40 incremental QALYs gained, \$36,779 more in 20-year costs for an ICER of \$91,510 per QALY. Compared to first-line GA treatment without switching, first-line treatment with natalizumab was associated with an ICER of \$95,764 per QALY (likelihood = 0.56 that first-line natalizumab treatment was cost-effective at a willingness-to-pay of \$100,000 per QALY). First-line natalizumab treatment dominated second-line natalizumab treatment when compared to GA treatment without switching through principles of extended dominance. **CONCLUSIONS:** Treating JC virus negative RRMS patients with natalizumab as a first-line treatment provided better value compared to natalizumab use as a second-line agent. More aggressive treatment with natalizumab should be considered for RRMS patients who are negative for anti-JC virus antibodies.

PND20

COST-EFFECTIVENESS OF FINGOLIMOD, TERIFLUNOMIDE, DIMETHYL FUMARATE AND INTRAMUSCULAR INTERFERON BETA-1A IN RELAPSING-REMITTING MULTIPLE SCLEROSIS

Zhang X, Hay JW

University of Southern California, Los Angeles, CA, USA

OBJECTIVES: To compare the cost-effectiveness of fingolimod, teriflunomide, dimethyl fumarate and IM IFN β -1a as first-line therapies in treatment of patients with Relapsing-Remitting Multiple Sclerosis (RRMS). **METHODS:** A Markov model was developed to simulate the disease progression and to evaluate the cost-effectiveness of disease-modifying drugs from a US societal perspective. The time horizon in base