Pack-size data were sourced from the NHSBA December 2014 Drug Tariff and BNF 68. A 'comparable' drug had the same active ingredient, concentration and administration method as the prescribed drug. Cost-savings, had the cheapest comparable drugs been prescribed, were calculated as: [total NIC in 2014] – ([total mg of prescribed drugs] x [£/mg of cheapest comparable drugs]). The branded cost range, had only branded prescribing occurred, was calculated as: [total mg of prescribed drugs] x [£/mg of the most or least expensive branded comparable drugs]. **RESULTS:** Actual total NIC for antiepileptics in 2014 was £498,552,273. Had the cheapest comparable drug always been prescribed, this would have decreased by £95,853,020. The greatest cost-savings would have been in MHRA categories 2 (40%) and 3 (44%). Had branded prescribing always occurred, total NIC would have increased between £58,988,547 (if cheapest branded drug prescribed) and £86,315,621 (if most expensive branded drug prescribed). The greatest increase would have been in MHRA category 2 (£34,267,393 to £44,191,174). **CONCLUSIONS:** It was estimated that greater branded prescribing of antiepileptics would have increased total NIC by between 12% and 17%. Only prescribing generically could have decreased total NIC by 19%. These estimates should be considered in light of increased risk for, and associated cost of, therapeutic failure.

PND37

REAL-WORLD ASSESSMENT OF RELAPSE, MEDICAL COSTS AND PERSISTENCY OF MULTIPLE SCLEROSIS PATIENTS TREATED WITH SUBCUTANEOUS INTERFERON β-1A

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OBJECTIVES: To describe relationships among persistency with subcutaneous interferon beta-1a (scIFNβ1a), relapse timing relative to discontinuation, and medical costs in patients with multiple sclerosis (MS). **METHODS:** Patients (aged 18-63 years) with ≥1 MS claim (ICD-9-CM:340.xx) and an initial scIFNβ1a claim (index event), 12 months of continuous eligibility before and 24 months after index were identified in the IMS PharMetrics Plus™ database. Discontinuation was defined as a ≥90 day gap in scIFNβ1a therapy. Relapse was defined as the first post-index MS-related inpatient stay, emergency room (ER) visit or MS outpatient visit with a corticosteroid claim ±7 days. Relapse was categorized as before or after scIFNβ1a discontinuation. Medical costs [excluding disease-modifying drug (DMD) costs] per day (US$) pre or post discontinuation of scIFNβ1a are presented. Costs were evaluated with generalized linear regression models using gap, time of first relapse and the interaction as predictors. Prior costs, age, gender and time until relapse were evaluated as covariates. **RESULTS:** 1540 MS patients met the study criteria; 29.2% had a relapse and 50% (n=770) discontinued scIFNβ1a during the follow-up period. Patients discontinuing scIFNβ1a averaged 250 (SD=182) days of treatment and 33.1% relapsed, while those who did not discontinue averaged 726 (SD=15) days of treatment and 25.2% relapsed (p<0.01). Non-DMD medical cost/day was lowest for patients with no gap and no relapse ($24.71/day). Patients who discontinued scIFNβ1a and had their first relapse after discontinuation, had non-DMD medical costs of $39.04/day prior to discontinuation, and $52.29/day after discontinuation. Patients with no gap and a relapse while scIFNβ1a was available had lower non-DMD medical costs ($38.88/day), than patients with a gap in scIFNβ1a that experienced a relapse while on treatment ($72.37/day). Models suggest that costs differ depending on gap status and timing of the relapse relative to scIFNβ1a discontinuation (p<0.01). **CONCLUSIONS:** These results suggest the value of maintaining scIFNβ1a treatment.

PND38

ANALYSIS OF EXPENDITURE IN MULTIPLE SCLEROSIS DISEASE MODIFYING THERAPIES EVOLUTION BETWEEN 2004-2014 IN SPAIN

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OBJECTIVES: To analyze factors of recent evolution of Multiple Sclerosis (MS) Disease Modifying Therapies (DMT) budgets in Spain between 2004 and 2014. **METHODS:** 2004-2014 single DMT monthly expenditure was provided by IMS Health. For each DMT line: (First line: subcutaneous and intramuscular interferon (IFN) β-1a, subcutaneous IFN β-1b and glatiramer acetate injection. Second line: natalizumab and fingolimod) were calculated monthly and annually evolution of number of patients, billing, drug cost per patient and cost per year of treatment. Two periods: 2004-2014 and 2007 (start marketing second lines DMT)-2014 period were analyzed for each DMT line. **RESULTS:** During 2004-2014 DMT expenditure increased from 115.5M€ to 353.8M€ due to: A greater number of patients 165% (10.27% annual growth per year) and a further growth of annual cost per patient: 15.82% (1.48 % annual growth per year). In December 2014 second lines correspond to a 35.63% of DMT expenditure. Annual cost per patient in second line represents 53% over cost per treated patient and 82% greater than first line DMT cost per year. If year 2007 is omitted from analysis (Only 68 second-line treatments and 1.44M€ of associated expense) and is analyzed 2008-2014 period, second-line DMT represent 61% of new treatments causing a 78% increase in DMT expenditure. In 2014 second line DMT participation reaches 86% of new regimens causing the 91.23% of increase DMT expenditure. **CONCLUSIONS:** The growing incorporation of new therapies and the appreciable rise in the number of treated patients (10.27 % annual growth per year) are components to consider in the pharmaceutical budget management.

PND39

ADAPTING THE ADPKD OUTCOMES MODEL TO PREDICT COST CONSEQUENCE IN ITALIAN PATIENTS WITH AUTOSOMAL DOMINANT POLYCYSTIC KIDNEY DISEASE (ADPKD) TREATED WITH JINARC (TOLVAPTAN)

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OBJECTIVES: This study aimed to adapt the ADPKD Outcomes Model in order to compare the Chronic Kidney Disease progression and relative costs of Autosomal Dominant Polycystic Kidney Disease (ADPKD)-affected patients treated with JINARC as compared to non-treated patients in Italy. **METHODS:** Utilising the structure of the ADPKD Outcomes Model adapted to the Italian context, the analysis has simulated the evolution of ADPKD patients over a period of 80 years. The study was performed from both the National Health Service and social perspectives. The ADPKD Outcomes Model is based on a series of annual simulations at the individual patient level that allows clinical evolutions, such as the achievement of end-stage renal disease (ESRD). The model is able to incorporate country-specific pathways for ESRD-affected patients, such as haemodialysis (HD), peritoneal dialysis (PD), transplant and conservative therapy, together with their different costs and mortality rates. Clinical data on treatment effect of tolvaptan were derived from TEMPO 3:4 clinical trial. **RESULTS:** The results show that tolvaptan is estimated to postpone the time-to-ESRD by a mean of around 3.7 years and increase life expectancy by a mean of 1.6 years. It is predicted that a larger number of ESRD events and deaths could be avoided among treated patients vs non-treated patients (e.g. 346 ESRD events avoided, and 68 deaths for ESRD avoided at 15 years). In addition, the cumulative cost per patient treated who reaches ESRD, compared to non-treated patient, generates overall savings in the medium to long-term (e.g. at 15 years, €16.6 million saved for HD and €2.0 million saved for PD). **CONCLUSIONS:** The use of JINARC in ADPKD patients permits not only a slowing down in the worsening of the disease, but also an increase in life expectancy and the achievement of a considerable decrease in direct and indirect health costs in the medium to long-term.

PND41

COST-EFFECTIVENESS ANALYSIS OF DELAYED-RELEASE DIMETHYL FUMARATE FOR THE TREATMENT OF RELAPSING REMITTING MULTIPLE SCLEROSIS IN SPAIN

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OBJECTIVES: To assess the cost-effectiveness of delayed-release dimethyl fumarate (DMF) versus treatments for relapsing remitting multiple sclerosis (RRMS) from a Spanish Health System perspective. **METHODS:** A decision analytic Markov model was developed to assess the cost-effectiveness of DMF versus IFN beta (IFNβ)-1a IM, IFNβ-1a 22 and 44 mcg SC, IFNβ-1b SC, glatiramer acetate (GA) SC, teriflunomide, fingolimod and natalizumab in RRMS patients. Based on the Expanded Disability Status Scale (EDSS), 21 health states were defined (EDSS 0-9 RRMS, EDSS 0-9 SPMS and death). Disability disease progression rate, relapse rate, treatment disutility, adverse events, rates of withdrawal and disease related mortality were assessed over a 30-year period. Data sources included published literature, clinical trials, Spanish price/tariff lists, and national population statistics. Results are presented as quality-adjusted life-years (QALY) and incremental cost effectiveness ratio (ICER). Univariate and probabilistic sensitivity analyses were performed. **RESULTS:** DMF showed higher QALYs and lower costs compared to IFNβ-1a IM (0.122 QALYs; -2,761€), IFNβ-1a 44mcg SC (0.093 QALYs; -8,827€), IFNβ-1b SC (0.286 QALYs; -7,108€), GA SC (0.235 QALYs; -1,040€), teriflunomide (0.125 QALYs; -260€) and fingolimod (0.184 QALYs; -29,813€). In the comparison of DMF vs IFNβ-1a 22 mcg SC, DMF provided incremental QALYs of 0.193 and an anticipated ICER of 23,482€. Compared to natalizumab, DMF showed incremental QALYs of -0.143 and incremental costs of -29.001€, being less effective and cheaper. Sensitivity analyses demonstrated the robustness of the model. At a decision-maker's willingness to pay of < 30.000€, DMF was cost-effective in more than 80% of simulations versus IFN beta-1a IM, IFNβ-1a 44 mcg SC, IFNIβ-1b SC and GA SC; in 52% of simulations versus INFβ-1a 22 mcg SC; in 65% of simulations versus teriflunomide; and in 100% of simulations versus fingolimod. **CONCLUSIONS:** In this analysis DMF showed dominance in ICER against IFNβ-1a IM, IFNβ-1a 44 mcg SC, IFNβ-1b SC, GA SC, teriflunomide and fingolimod.

PND42

EXPLORING COST-EFFECTIVENESS HETEROGENEITY BY STATE: USING STATE-LEVEL VS. NATIONAL DISEASE INCIDENCE IN NEWBORN SCREENING (NBS) COST-EFFECTIVENESS ANALYSIS OF CONGENITAL ADRENAL HYPERPLASIA (CAH)

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OBJECTIVES: Congenital Adrenal Hyperplasia (CAH) is one of the core conditions for which all states plus D.C. require newborn screening. Yoo and Grosse (2009) (Y/G) performed a CEA using a national incidence figure, indicating a lack of cost-effectiveness for CAH screening (ICER, $292,000/life year gained). However, the incidence of the disease varies among the states, which could affect the cost-effectiveness of the screening. Here we examine variability in that ICER due to variation in state incidence. **METHODS:** We reconstructed a decision tree from Y/G to reproduce their deterministic ICER for CAH screening. We then ran the model for every state having a record of cases of CAH in the last year we were able to find incidence measures for most states (2006) to estimate ICERs by state. **RESULTS:** We were able to approximately reproduce the Y/G result for the ICER ($293,927 per life year saved vs. $ 292,000 from Y/G, difference < 1%). After excluding states with missing data (5) and states with zero measured 2006 incidence (13), the ICERs of the remaining 33 states are shown, as expected, to inversely relate to the state incidence. The ICERs ranged from $37,535 (D.C.) to $1,514,018 (Illinois) per life year saved (median, $303,555). Three of the 33 states have ICERs less than $150,000 per life year. **CONCLUSIONS:** Different incidences of CAH have a clear effect on the Y/G ICERs of CAH newborn screening. In contrast to the general results from Y/G, using a national average incidence, 3 states have ICERs in a range that indicates possible cost-effectiveness in a deterministic model (ICER < $ 150,000), suggesting that a PSA may be an interesting extension to assess the level of uncertainty around the state-level ICER estimates.