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**RESULTS:** The study sample consisted of 2,879 patients; 19.8% relapsed within 9 months, with an average time to relapse of 110 days (standard deviation: 77.9). A higher proportion of non-adherent patients relapsed versus adherent patients (23.4% vs. 17.9%, p<0.001). A higher proportion of non-adherent patients relapsed versus adherent patients (23.4% vs. 17.9%, p<0.001).

**CONCLUSIONS:** Non-adherence and non-persistence with DMTs were related to higher relapse rates in MS patients in a real-world setting. Further research is needed to confirm these findings for other DMTs and to quantify the level of non-adherence with its impact on effectiveness.

**REFERENCES:**

**PDN90**

**INEQUALITIES IN ACCESS TO TREATMENT FOR MULTIPLE SCLEOROSIS IN ENGLAND CONTINUE DESPITE SERVICE IMPROVEMENT INITIATIVES AND POLICY REFORMS**

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**OBJECTIVES:** Multiple sclerosis (MS) is an acquired chronic immune-mediated inflammatory condition of the central nervous system. It is the commonest cause of serious physical disability in adults of working age. Inequalities in access to treatment for MS have been reported. In England, the uptake of NICE Guidance is not uniform across the country, leading to delays and restrictions in access to treatment for patients in some areas. This paper aims to assess the impact on unequal treatment for MS in England.

**RESULTS:** Prescribing of fingolimod for MS in England was examined using the NHS England Innovation Scorecard for Key Secondary Care Medicines per 100,000 population. Uptake of fingolimod across the 25 area teams was examined. **RESULTS:** Despite positive NICE guidance for fingolimod issued in April 2012 there are major differences in the uptake of fingolimod in England. The highest uptake can be seen in the London area and in other area team geographies in the south. Uptake in these areas is at least 3 fold and in some cases 7 fold greater than that seen in area team geographies in the North West. Some of this variation may be explained by proximity to specialist care centres, however the existence of these centres does not explain the extent of the variation. **CONCLUSIONS:** Variations in access to treatment for MS in England persist despite NICE guidance and NHS reform aimed at addressing these inequalities.

**PDN91**

**NATALIZUMAB USE IN MULTIPLE SCLEOROSIS: A REAL WORLD EVIDENCE (RWE) ANALYSIS OF ITS IMPACT ON NHS RESOURCES IN ENGLAND**

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**OBJECTIVES:** Natalizumab is a disease-modifying biologic used in MS and administered by intravenous infusion every 28 days. Analysis of the impact of natalizumab on hospital activity using Hospital Episodes Statistics (HES) data. **METHODS:** A retrospective analysis was performed using data for the specific period January 2009 to December 2012 (29 consecutive months). Data after May 2012 was not used due to the introduction of a second drug which could not be differentiated from natalizumab. A systematic review was also performed.

**RESULTS:** There was a 47% reduction in unplanned hospital visits, a 17% reduction in admissions and a 23% reduction in the number of planned and unplanned hospital days, visits, planned & unplanned bed days, and outpatient appointments. **RESULTS:** Comparing pre- with post- natalizumab periods there was a 50.0% reduction in mean unplanned hospital visits per patient (p = 0.010) and a 49.6% reduction in the mean number of bed days per unplanned visit (p = 0.027). Other observations included a 74.8% reduction in the mean number of unplanned bed days per patient (p = 0.138) and a 48.8% increase in mean outpatient appointments per patient (p = 0.351) however these were not statistically significant.

**CONCLUSIONS:** The mean number of bed days per planned admission was reduced by 87.0% (p = 0.004). The changes to in-patient admissions were estimated to deliver a small reduction in healthcare expenditure. **CONCLUSIONS:** The pattern of changes in hospital activity associated with natalizumab support the expected positive clinical outcomes. Confounding aspects were an identification bias in the non-random sampling and the potential for a regression to the mean effect.

**PDN92**

**TREATMENT PATTERNS, RESOURCE UTILIZATION AND COSTS IN MUSCULAR DYSTROPHIES: COMPARISON ACROSS ADMINISTRATIVE CLAIMS DATA**

Stott-Miller M1, Vlahiotis A1, Palmer L2

**OBJECTIVES:** This study aims to examine the real world experience relationship between medication use patterns of multiple sclerosis (MS) disease-modifying therapy (DMT) and relapse in a real-world setting. **METHODS:** This was a retrospective, observational study using administrative claims data (IP Clarity). A total of 500 patients diagnosed with muscular dystrophies (DM) were selected from Health Plan Management® (HPM®) claims database using ICD and OPCS codes and patterns of hospital and outpatient utilization.**RESULTS:** The ADD cut-point was based on the ineffectiveness of IF in reducing the number of relapse and deficit lesions at doses <360 mg/day. **RESULTS:** The study sample consisted of 2,879 patients; 19.8% relapsed within 9 months, with an average time to relapse of 110 days (standard deviation: 77.9). A higher proportion of non-adherent patients relapsed versus adherent patients (23.4% vs. 17.9%, p<0.001). A higher proportion of non-adherent patients relapsed versus adherent patients (23.4% vs. 17.9%, p<0.001).
utilization and costs in individuals with probable DMD. METHODS: We identified male patients aged 5-15 with at least one claim for muscular dystrophy between 11/01/2011 and 10/31/2013 (date of first claim = index) from a US administrative claims database. Patients were required to be continuously enrolled with pharmacy benefits for 12 months after index date. Cardiac drugs, gastrointestinal drugs, and adrenals (including steroids) were evaluated in the 12 months after index. Number of inpatient and ER admissions, number of non-ER outpatient claims and prescriptions, as well as healthcare costs (overall and DMD-specific) were compared between patients with at least one ER admission (5% DMD-specific admissions), and 29% had at least one ER admission (13% DMD-specific). During follow-up. In the year after index, 16% had at least one inpatient admission with pharmacy benefits for 12 months after index date. Cardiac drugs, gastrointestinal drugs, and adrenals (including steroids) were not. There was a significant variation in the cost of the treatments in different settings where stakeholders need to align to each other in order to forecasts other settings.

PND93

HEALTH CARE COSTS ASSOCIATED WITH GERIATRIC PATIENTS DIAGNOSED WITH MULTIPLE SCLEROSIS TAKING DISEASE MODIFYING AGENTS IN THE UNITED STATES

Greene NV, L’Heureux M1

OBJECTIVES: Understanding the health care costs associated with Multiple sclerosis (MS) in the geriatric population is not well studied. The objective of this study is to assess the health care costs associated with geriatric patients with MS and taking disease modifying therapies (DMTs) in the US. METHODS: A large US administrative retrospective claims database was used to identify patients diagnosed with MS who were prescribed DMTs between January 2010 and December 2012 were included in the study. All patients were ≥ 65 years of age and continuously enrolled in the same health plan for at least a year. Descriptive statistics and chi-square tests were performed on the data and statistical significance level was set at α = 0.05. RESULTS: There were 45,921 patients that met the study inclusion criteria. Majority (66.9%) of the patients was taking subcutaneous injections (SC), 31.2% were taking IV/IM (IV/M) and 1.9% was taking oral (OR) DMTs (<0.010). Patients on average were charged $4297 ± 2354.2 with a significant difference (p<0.001) between the three drug groups (OR $5087 vs SC $4225 vs IVM $4188). However, the mean allowed amount by the health plan was $3692.5 ± 1915.5 and the actual paid amount was $3587.1 ± 1915.5 with a significant difference between the three groups (p<0.001). Furthermore, average, patient’s total per-episode cost was $83.0 ± 304.3 with a difference between the groups (p<0.010). For patients whose prescription was on their health plans formulary were charged lower ($4187 vs $4246, p<0.05) and paid lower co-payment ($78 vs $97, p<0.010) than who were not. There was a significant variation in the cost of the treatments in different regions in the US (p<0.010). CONCLUSIONS: The overall costs for oral DMTs were higher than SC and IVM DMTs.

PND95

DEVELOPMENT OF MS BUDGET MANAGER: A PRACTICAL TOOL TO ASSIST ALTERNATIVE SUPERVISIONS AT MULTIPLE DECISION LEVELS IN THE FORECAST AND FINANCIAL MANAGEMENT FOR MULTIPLE SCLEROSIS (MS)

Pradelli L, Bellone M, Zaniolo O

OBJECTIVES: There are currently several pharmaceutical options for multiple sclerosis (MS), some introduced recently and some more coming in the future. They are characterized by different modes of action, schemes of administration and, ultimately, costs. MS resource management is complex and rely on proper interaction between stakeholders – hospital pharmacists, MS department heads, hospital top management, local health representatives, heads of regional pharmaceutical policy. This is particularly true in Italy, a federal and decentralised setting comprising 20 regions, local, provincial, regional, and national decision makers. The aim of this work was to design a tool to explore the financial implications and ultimately align decision makers. Informed choices might save resources and support the adoption of innovative treatments, thus contributing to overall sustainability and equity in patient access.

METHODS: We developed a dynamic user-friendly tool in Microsoft Excel® with VBA® macros. The flow of the analysis is stepwise and comprises, on top of adherence, variables usually excluded from standard budget impact such as intra- and inter-class switches, potential wash out period, as well as drop-out rates. All variables can be modified or excluded by users since default values can be restored at any time. The tool is open and can accommodate future treatments.

RESULTS: The tool assesses the financial impact of alternative choices in a comprehensive manner since results can be displayed with the desired level of detail – cumulative or annual, overall or by treatment line and/or cost item. CONCLUSIONS: This is an example of how to match the required level of information to specific end-users, encouraging both discussion and decision making in the best interest of patients. This is a prerequisite in multifaceted realities like Italy but it could assist in many other settings where stakeholders need to align to each other in order to forecast accurately budget allocation.

PND96

HUMANISTIC AND ECONOMIC BURDEN OF FOCAL DRUG-REFRACTORY EPILEPSY IN EUROPE

Vrououch F1, Risi L2, Antoni E1, Alvarez O3, Grovale N1

OBJECTIVES: The aim of this research is to assess the humanistic and economic burden of focal drug-refractory epilepsy in Europe. - MS NICE: A PubMed literature review was performed to identify publications from January 2004 to December 2014 on prevalence and incidence, impact on quality of life and associated costs of epilepsy. RESULTS: In Europe around 6 million people have epilepsy, with 30-45% of patients not responding to drug therapy. The prevalence of epilepsy is 657 and 43.87 per 100,000 persons, respectively. Epilepsy is associated with psychiatric comorbidities, chronic somatic conditions, significant costs to the health care system and a lower quality of life than the general population. In 2004 health care expenditures for the treatment of epilepsy accounted for 0.2% of the total European national income and the annual cost per patient varied from €2,000 to €11,500. In 2010, the yearly cost of epilepsy was estimated to range from €11.8 to €20 billion. The cost of epilepsy depends on the severity and frequency of seizures and if patients are drug-refractory (20-40% of drug-refractory patients account for 80% of the costs). The main cost drivers of epilepsy are hospitalization, emergency room visits and anticonvulsant therapy costs (due to high unemployment rate, 46% compared with 19% for the matched control population). Standard therapy for drug-refractory focal epilepsy is open surgery which is highly effective but also highly invasive and requires strict screening criteria. Minimally invasive surgical techniques are an alternative to open surgery and have shown promising clinical benefits with lower neurological impairment and less hospital stays compared with open surgery. CONCLUSIONS: This data highlights the high humanistic and economic burden of focal drug-refractory epilepsy in Europe, and the need for new procedures to improve health outcomes and reduce health care resource utilization.

PND97

IMPACT OF ONGOING NATIONAL HEALTH TECHNOLOGY ASSESSMENT CHALLENGES ON PATIENT ACCESS TO NEW THERAPIES FOR MULTIPLE SCLEROSIS IN GERMANY AND ITALY

Leach N1, Kanakam N2, Drosedel D2, Walzer S3

OBJECTIVES: In recent years, health technology assessment (HTA) agencies have encountered substantial technical challenges in assessing the relative value of new therapies for multiple sclerosis (MS), potentially delaying patient access to promising new treatments. The aim of this study was to compare the impact of HTA in Germany and the UK on patient access to new therapies for MS. METHODS: Technology appraisals performed by the National Institute for Health and Care Excellence (NICE) and Institute for Quality and Efficiency in Healthcare (IQWiG) were used to determine the process of HTA in the UK and Germany in the assessment of gilenalumab (GA) and its comparator fingolimod, dimethyl fumarate and teriflunomide; both bodies have shown promising clinical benefits with lower neurological impairment and less hospital stays compared with open surgery. CONCLUSIONS: This data highlights the high humanistic and economic burden of focal drug-refractory epilepsy in Europe, and the need for new procedures to improve health outcomes and reduce health care resource utilization.

PND98

A LONG TERM ANALYSIS OF THE CLINICAL AND COST EFFECTIVENESS OF GLATIRAMER ACETATE FROM THE UK MULTIPLE SCLEROSIS RISK SHARING SCHEME

Sumra M, Walters E

OBJECTIVES: The primary objective of this analysis was to model the clinical and cost effectiveness of glatiramer acetate (GA) using 6-year data from the UK Multiple Sclerosis Risk Sharing Scheme (RS). METHODS: A continuous Markov model was developed to assess mean Expanded Disability Status Scale (EDSS) and utility at year 6 and to determine whether this was consistent with a cost-effective target of £36,000 per quality-adjusted life year (QALY) projected over 20 years. In populating the model, data from patients fulfilling the Association of British Neurologists (ABN) 2001 guidelines were analysed together with matched patient data from the British Columbia Multiple Sclerosis Risk Sharing Scheme (BCMSRSS) as a comparator. The model’s primary outcome was the progression ratio, measured both as EDSS score and utility, determined for the GA treated group by adjusting within the model the theoretical ratio imposed on the comparator arms. Utility for GA was also included. For the progression ratio, the clinical trial treated groups was mathematically zero. This effective ratio was input into the cost-effectiveness calculator part of the model to determine the cost per QALY. RESULTS: 978 patients starting GA were enrolled (755, M: 223), with an average age of 30.0 years. 47% of patients were MCMS patients, 36% had a mean follow-up of 5.2 years (SD 1.33). The Markov model showed 30.3% slower progression for the GA cohort than predicted for untreated controls (progression ratio: 69.7%). Utility ratios were consistent with cost-effectiveness (ratio: 44.2%) and the annual cost per patient varied from £2,000 to £11,500. In 2010, the yearly cost of epilepsy was estimated to range from €11.8 to €20 billion. The cost of epilepsy depends on the severity and frequency of seizures and if patients are drug-refractory (20-40% of drug-refractory patients account for 80% of the costs). The main cost drivers of epilepsy are hospitalization, emergency room visits and anticonvulsant therapy costs (due to high unemployment rate, 46% compared with 19% for the matched control population). Standard therapy for drug-refractory focal epilepsy is open surgery which is highly effective but also highly invasive and requires strict screening criteria. Minimally invasive surgical techniques are an alternative to open surgery and have shown promising clinical benefits with lower neurological impairment and less hospital stays compared with open surgery. CONCLUSIONS: This data highlights the high humanistic and economic burden of focal drug-refractory epilepsy in Europe, and the need for new procedures to improve health outcomes and reduce health care resource utilization.