tient diagnostic codes for MS (ICD-9-CM 340) or one inpatient code during the index period (1/2/2007-6/30/2008) were included. Continuous enrollment required 6 mos pre-index and 12 mos post-index. A sub-group of newly treated patients, defined as MS patients free of DMT claims for 6 mos prior to initial MS diagnosis, were also analyzed for frequencies of relapses. Using a claims-based definition, relapses were defined as an inpatient hospitalization with a primary diagnosis of MS. Moderate relapses were defined as an outpatient visit with a diagnosis of MS in combination with a pharmacy or medical claim for a corticosteroid within 7 days following the outpatient visit. Additional data collected included relapse costs and length of inpatient stay. All variables were analyzed descriptively. 

RESULTS: Among the 25,503 MS patients identified, mean age was 47 years and 18,027 (77%) were female. Overall, 1,479 (6.3%) patients had a relapse. 940 patients (4.0%) had a severe relapse, with an average length of inpatient stay of 5.6 days. Among the sub-group of newly treated MS patients (NTMS) (N = 15,009), 1,003 (7.0%) were classified as having a relapse, 710 (4.7%) were severe. Mean cost of relapse [NTMS] was $12,558 [$11,485] for severe, and $1,561 [$1,844] for moderate. 

CONCLUSIONS: This descriptive analysis provides an updated estimate of the frequency and direct medical costs of both severe and moderate relapses among multiple sclerosis patients. The ranges of health care services used to manage a relapse reflect severity level. Further database analyses evaluating the impact of disease modifying treatment on the rates and costs of relapses is warranted.

PND5 USE OF TIME-TO-EVENT ANALYSES TO DEFINE EPISODES OF CARE IN SICKLE CELL ANEMIA 

Eervoir E, Kauf A

University of Florida, Gainesville, FL, USA

OBJECTIVES: With inter- and intra-patient variation in cost and health resource utilization, episodes of care are frequently used to define disease burden of care and to capture illness poorly. This study takes into account such variation and uses time-to-event analysis within an EOC framework to examine length and cost of care for vasculo-occlusive crisis (VOC) in sickle cell disease (SCD). METHODS: Florida Medicaid administrative data from 2001-2005 were used to examine EOCs. Enrollees under the age of 65 were included. EOCs were defined as 90 days apart containing patient admission to the diagnosis of VOC (ICD 9-CM 282.xx) and 6 months of continuous eligibility were included in the study. Episodes began with the first VOC-related claim. Parametric survival analysis was used to calculate episode length as the number of days by which the survival rate was returned to the patient’s pre-episode charge. Episode costs were calculated as the difference between pre- and post-diagnosis payments. EOCs were calculated by subgroups according to age (pediatric and adult), gender, and presence of significant co-morbidity. RESULTS: Among 2,543 individuals included in the study, mean age was 14.4 years (standard deviation [SD] = 11.9) and 48.2% were male. Mean episode length was 11.6 days (95% confidence interval (CI): 10.9-12.3). Pediatric patients had shorter episodes compared to adults (10.5 versus 16.4 days, respectively), but there were no differences by gender. The presence of acute chest syndrome secondary to VOC increased episode length to 13.4 days. The incremental cost of VOC was $357 (95% CI: $380 - $343). Costs were slightly higher for males versus females and for adults versus pediatric patients. CONCLUSIONS: Episode length as determined by parametric survival analysis was consistent with the clinical presentation of VOC. Our analysis suggests episode costs vary among patient groups with similar episode length. Future work aims to quantify differences between standard and parametric-based EOC approaches.

PND5 COMPARISON OF THE HEALTH CARE UTILIZATION AND COSTS OF MEDICALLY MANAGED PATIENTS VERSUS DEEP BRAIN STIMULATION PATIENTS WITH PARKINSON’S DISEASE

Wu CF1, Rockstead L2, Halsted M2

1University of Minnesota, Minneapolis, MN, USA, 2Medtronic, Inc., Minneapolis, MN, USA

OBJECTIVES: Parkinson’s disease (PD) is a degenerative brain disorder of adult onset that impairs motor function. As PD progresses, patients experience reductions in physical functioning and overall quality of life. Deep brain stimulation (DBS) is an implanted medical device that delivers electrical stimulation to specific area(s) of the brain that control movement and muscle function. DBS has been shown in clinical trials to significantly improve motor functioning, reduce disability and improve the quality of life in patients with advanced stages of PD. The objective of this study is to compare the healthcare utilization and costs of PD patients receiving DBS versus medically management. METHODS: Patients with PD between 2006 and 2008 were identified the MarketScan Commercial Claims and Encounter database. PD patients were segmented into medically managed patients and deep brain stimulation (DBS) patients. Medically managed PD patients were required to be on at least one anti-parkinsonian medication. DBS patients were identified using surgical procedure codes for lead implantation; an indexed patient episode from the outpatient visit to the first post-operative claim. Medically managed PD patients were followed for one year. Annual healthcare utilization and per patient healthcare costs were compared. RESULTS: We found that DBS patients had significantly fewer inpatient hospitalizations (1.6 v. 2.4) and shorter lengths of stay (2.8 v. 6.2) compared to medically managed PD patients (p< 0.01). However, DBS patients accrued significantly higher pharmaceutical costs and inpatient healthcare costs with a significantly higher inpatient cost associated with DBS implantation. DBS patients had significantly lower annual pharmaceutical costs than PD patients ($7,105 v $11,735). The differences may be underestimated as DBS patients typically have more advanced PD than medically managed PD patients accrued significantly higher pharmaceutical costs and inpatient hospitalization stays compared to DBS patients. These results suggest DBS patients may require fewer medications to manage PD symptoms.

PND5 TEMPORAL TRENDS AND GEOGRAPHIC DISCREPANCIES IN PUBLIC EXPENDITURES WITH MULTIPLE SCLEROSIS DRUG TREATMENT IN BRAZIL

Takemoto MMS, Takemoto ML, Fernandes RA, Duarte GGF, Tolentino ACM, Santos PML, Moretti AIF

ANCOVA - Knowledge Translation, Rio de Janeiro, Brazil

OBJECTIVES: This study aims to describe temporal trends and geographic discrepancies on public pharmaceutical expenditures with multiple sclerosis (MS) treatment in Brazil. METHODS: Longitudinal analysis of Brazilian MS pharmacy claims as reported in the Brazilian Ambulatory Information System Database. Analyses were based on aggregated data from the 27 Brazilian states, observed annually for the period 2006-2009. The total MS-related expenditure (in Brazilian Reals, state- drug (Glatiramer 20mg, Betainterferon 22mcg, Betainterferon 44mcg, Betainterferon 30 mcg, and Betainterferon 300mcg), and year. Per capita calculations were also performed using Brazilian 2009 population. RESULTS: MS public expenditures with MS drugs had a significant rising from 30,623,950,898BRL in 2006 to 214,405,349BRL in 2009, a more than 7-fold increasing. Total investments in MS drugs totaled 629,917,685BRL. Federal funding transfers for the state of Roraima presented the highest growth rate (1.497%) rising from 10,549,860BRL in 2006 to 157,973BRL in 2009. São Paulo (41,384,539 inhabitants, 1/3 of Brazilian population) was responsible for the higher absolute investment (13,130,526BRL and 88,948,978BRL in 2006 and 2009, respectively) and the higher total expenditure for the period (259,591,564BRL, 1/3 of national expenditures). The lowest spending was observed for states in the North Region - Amapá had any MS claim in the 4-year period and Acre had the lowest value (84,7546BRL). Both states had similar projected 2009 population and are located at regions with very similar characteristics (both ethnically and geographically). Betainterferon 4mcg represented the highest expenditures in 2009 and had the highest annual cost per patient (54,288BRL). Conversely, Betainterferon 22mcg was the only drug with decreasing expenditure in the period, decreasing from 54,774,127BRL in 2007 to 32,304,159BRL in 2009. CONCLUSIONS: Our findings highlighted geographic discrepancies within the Brazilian healthcare system in terms of MS treatment funding even when demographic aspects were considered. Nevertheless a constant increasing in public expenditures was observed across most states.

PND5 INPATIENT HEALTH RESOURCE UTILIZATION AMONG MULTIPLE SCLEROSIS PATIENTS IN THE BRAZILIAN PUBLIC HEALTH CARE SYSTEM

Takemoto MMS, Takemoto ML, Fernandes RA, Duarte GGF, Moretti AIF

ANCOVA - Knowledge Translation, Rio de Janeiro, Brazil

OBJECTIVES: To describe inpatient resource use among multiple sclerosis (MS) patients within the Brazilian public healthcare system (BPHS). METHODS: Inpatient admissions were obtained from the Brazilian Hospital Information System Database for the period 2006-2009. Records were included if an ICD-10 code G35 (MS) appeared as primary or secondary reason for hospitalization. The following variables were collected: procedure code for the inpatient admission (relapse management versus other indications), mean length of stay, mean Intensive Care Unit (ICU) days, in-hospital mortality, mean cost per hospitalization. Hospitalization rates were calculated using the estimated MS population using the MarketScan Commercial Claims database. The in-hospital mortality rate is generally low, with the highest value in 2008 (3.09%) and the lowest in 2009 (1.6%). There were no differences between relapse-related and non-relapse-related admissions in terms of in-hospital mortality. The mean length of stay was 8.9 days for all MS-related hospitalizations and 7.7 days for those to manage MS. ICU claims were rare in this sample. In 2009, the observed average cost per hospitalization was 675 BRL and the total expenditure with inpatient MS admission was 1,751,515,000 BRL corresponding to 4.5% of total healthcare expenditure with MS. CONCLUSIONS: Relapses are responsible for over 90% of all inpatient admissions of MS patients. Although higher health resource consumption is expected in the outpatient setting, therapeutic strategies directed at reducing the incidence of relapses can potentially lead to savings within the BPHS.

PND5 INVESTIGATION TREATMENT PATTERNS FOR MULTIPLE SCLEROSIS PATIENTS IN THE BRAZILIAN PUBLIC HEALTH CARE SYSTEM

Takemoto MMS, Takemoto ML, Fernandes RA, Duarte GGF, Moretti AIF, Santos PML

ANCOVA - Knowledge Translation, Rio de Janeiro, Brazil

OBJECTIVES: This study aimed to investigate the patterns of medication treatment among patients with Multiple Sclerosis (MS) treated in the Brazilian Public Health Care System (BPHS) and examine possible temporal and spatial trends in those patterns. METHODS: Temporal trends and geographic discrepancies on public pharmaceutical expenditures with multiple sclerosis (MS) treatment in Brazil. ANOVA - Knowledge Translation, Rio de Janeiro, Brazil

Moretti AIP

Takemoto MMS, Takemoto ML, Fernandes RA, Duarte GGF, Tolentino ACM, Santos PML, Duarte GGF, Moretti AIF

ANCOVA - Knowledge Translation, Rio de Janeiro, Brazil