BACKGROUND: Only limited data are available on the effect of different Disease Modifying Treatments (DMTs) on indirect costs due to sick leave among employed individuals treated for Multiple Sclerosis (MS).

OBJECTIVES: To assess changes in indirect costs and absences due to sick leave among employees treated with DMTs for MS.

METHODS: A healthcare claims database of US employees from 2001-2008 was used to identify patients with MS (2 DMT prescriptions or a DMT prescription and an MS diagnosis [ICD-9=340.X]). Costs associated with absenteeism were based on sick leave data recorded by the employers. Employees with at least 6-months history before DMT initialization and 6-month follow-up data were included in the analysis. T-tests were used to compare before, after, and changes in indirect costs and absenteeism between and within DMT groups.

RESULTS: Data from 153 employees using DMTs were identified; 76 employees (35=Avonex=Interferon [IFN]-β1a-IM; 12=Betaseron=IFN-β1b; 19=Copaxone=glatiramer acetate; 10=Rebif=IFN-β1a-SC) were eligible for sick leave and included for analysis (see table). No significant differences existed between cohorts in age, gender, certain job-related variables, and pre-period Charlson Comorbidity Index. Before treatment initiation, Avonex users had the highest indirect costs ($1172) compared to Betaseron ($765), Copaxone ($476) and Rebif ($341). In the 6-months following treatment initiation, Avonex users had a larger indirect costs decrease (60.5%, $709 decrease to $464, \(P<0.05\)) than Betaseron (46.7%, $357 decrease to $408), while indirect costs increased for Copaxone (65.5%, $311 increase to $788) and Rebif (37.1%, $126 increase to $467). The differences between Avonex vs. (Copaxone and Rebif); and B vs. (Copaxone and Rebif) were significant. Only Avonex users had a reduction in absenteeism (from 5.6 to 4.3 days), while absenteeism increased for Betaseron (3.4 to 4.3 days), Copaxone (2.3 to 4.3 days) and Rebif (1.9 to 6.7 days). Copaxone's increase in absence days was significant when compared with Betaseron's increase (\(P=0.0105\)) and Avonex's decrease (\(P=0.0235\)).

CONCLUSIONS: Among employees treated with DMTs for MS, Avonex users may have significantly greater reduction in indirect costs and fewer absences after therapy initiation. These real-world differences suggest that Avonex patients may have greater reductions in disability than employees treated with other DMTs.
BACKGROUND:
• Multiple sclerosis (MS) is an acquired, inflammatory and immune-mediated disorder of the central nervous system characterized by inflammation, demyelination and destruction of neurons. It affects about 2 million persons worldwide and from 350,000 to 450,000 in the United States.
• Several studies have reported that patients with MS have difficulties maintaining employment due to the disease.
• Only limited data are available on the effect of different disease-modifying therapies (DMTs) on indirect costs due to sick leave among employees treated individually for MS.

METHODS:
• To assess changes in indirect costs and absences due to sick leave among employees treated with different DMTs for MS.
  - Annual sick-leave ranges among the DMTs were recently reported as:
  - Absenteeism: 2.98–8.13 days.

RESULTS:
• Among employees treated with DMTs for MS, Avonex users had a significantly larger indirect cost reduction ($440, P=0.0095 vs Copaxone and P=0.0278 vs Rebif) than Betaseron ($765), Copaxone ($476) and Rebif ($800). These real-world differences suggest that Avonex users had a larger indirect cost reduction compared to the other DMTs (Table 1). The increase in days absent for Copaxone was significant when compared with Betaseron’s increase (P=0.0101) and Avonex’s decrease (P<0.003). Indirect Costs Due to Sick Leave by DMT

LIMITATIONS:
• While this study adds to the body of evidence about health benefit costs among employees with MS treated with DMTs, the study has the same limitations characteristic of database studies using administrative claims, i.e., lack of severity classification, MS stage or type, and may not be representative of MS patients who are not diagnosed, who are not treated, who are treated with other therapies, or not able to maintain employment. Furthermore, the small sample size suggests that results may be interpreted with caution. Despite such limitations, the study attempted to control for confounding factors by using a pre/post study design where eligibility for sick leave was taken into account.

CONCLUSIONS/RELEVANCE:
• Among employees treated with DMTs for MS, Avonex users had a significantly greater reduction in indirect costs and fewer absences after therapy initiation than the other DMTs.
  - In the 6 months following therapy initiation, Avonex users had a larger indirect cost reduction compared to Betaseron (46.7%), $357 decrease to $48)$, while indirect costs increased for Copaxone (65.5%), $311 increase to $788) and Rebif (37.1%, $126 increase to $467).
  - The differences in cost changes between Avonex vs. Copaxone and Rebif, and Betaseron vs. Copaxone and Rebif were significant.

• Lost time (Absence) Comparisons (Table 3/ Figure 1)

• Among employees treated with DMTs for MS, Avonex users had a larger indirect cost reduction compared to Betaseron ($765), Copaxone ($476) and Rebif ($800). These real-world differences suggest that Avonex users may have greater reductions in indirect costs than employees treated with other DMTs.

• Employment insurance claims records were analyzed for medical costs and health service utilization.
• Demographic differences were compared using t-tests for continuous variables and chi-square tests for discrete variables.
• Employer insurance claims records were analyzed for medical costs and health service utilization.
• Employer insurance claims records were analyzed for medical costs and health service utilization.

OBJECTIVE:
• To assess changes in indirect costs and absences due to sick leave among employees treated with different DMTs for MS.

METHODS:
• A healthcare claims database of US employees from 2001–2008 was used to identify patients with MS (2 DMT prescriptions or a DMT prescription and an MS diagnosis).
• International Classification of Diseases-9 (ICD-9) codes were used to identify subjects with MS (ICD-9 codes of 340.2) associated with absence from work.

RESULTS:
• Data from 153 employees using DMTs were identified; 76 employees (35 Avonex-interferon-β1a (IFN-β1a, 12 Betaseron-IFN-β1b, 18 Copaxone-interferon-β1b-glucerase; 10 Rabif-IFN-β1a-C) were identified as eligible for sick leave and included in the analysis (Table 1).
  - No significant differences existed between cohorts in age, gender, certain job-related variables, and pre-period Charlson Comorbidity Index.
  - Cost Comparisons (Table 2): Before therapy initiation, Avonex users had the highest indirect costs ($172) compared to Betaseron ($765), Copaxone ($476) and Rebif ($846).

CONCLUSIONS/RELEVANCE:
• Among employees treated with DMTs for MS, Avonex users had a significantly greater reduction in indirect costs and fewer absences after therapy initiation than the other DMTs.
  - Avonex’s one a week dosing regimen may result in increased adherence that yielded better outcomes.
  - These real-world differences suggest that Avonex patients may have greater reductions in indirect costs than employees treated with other DMTs.

• A retrospective analysis was performed using patient claims data (1/1/2001 to 6/30/2008) from the Human Capital Management Services (HCMS) Research Reference Database consisting of approximately 670,000 employees representative of the US Employed Civil Labor Force (2004).
• Employer insurance claims records were analyzed for medical costs and health service utilization.
• Only limited data are available on the effect of different disease-modifying therapies (DMTs) on indirect costs due to sick leave among employees treated individually for MS.