DIFFERENCES were considered significant at P<0.05.

The post-pre design adjusted for confounding factors by having each employee serve as his/her own control.

RESULTS:

- Records of 68 patients with MS (ICD-9 code of 340.XX) treated with IFN-β1a IM (Avonex) were extracted with six-months of data before and after the employee’s index date. Of these 68 patients, 36 subjects had medical claims data and full health plan enrollment, 42 had detailed health service utilization information identifying the type or location of the medical service. Demographics from both cohorts are presented in Table 1.

- The age distributions of Avonex users from the two samples are shown in Figure 1.

- The mean and median cost in the pre-and-post treatment periods for the 68 Avonex treated patients with direct medical claims data are shown in Table 2.

- Within the 42 Avonex treated patients who had location of health service utilization information:
  - The likelihood of care by location of health service utilization in the pre-and post-treatment periods are shown in Figure 3 and the changes in the mean costs are shown in Table 3 with Office and total cost changes significant.
  - The mean cost of care by location of health service utilization in the pre-and post-treatment periods are shown in Table 4, and the changes in the mean costs are shown in Figure 4. The differences for Emergency Department, Inpatient Hospital, Office, and Outpatient Hospital changes being significant.

- The mean cost of care by location of health service utilization decreased in the post-treatment period (Figure 2), with the reductions in likelihood of Emergency Discharge, Other and Outpatient Hospital being significant.

- The mean and median costs were zero and were excluded from the table.

- All other median costs were zero and were excluded from the table.

- The index date is the date of the first Avonex prescription in the study period such that the employee was enrolled in a health plan and had no other multiple sclerosis medication other than the index medication at the index date.

- The six months data in the table for the Avonex prescription in the study period such that the employee was enrolled in a health plan and had no other multiple sclerosis medication other than the index medication during the six months before and after the index date.

- All other median costs were zero and were excluded from the table.
DIRECT MEDICAL COSTS AND THE LIKELIHOOD OF HEALTH SERVICE UTILIZATION BEFORE AND AFTER INITIATION OF INTERFERON β1A-IM TREATMENT AMONG PERSONS WITH MULTIPLE SCLEROSIS (MS)

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ABSTRACT

OBJECTIVES Because limited data are available on changes in direct costs (medical and prescription) and likelihood of health service utilization among patients treated with IFN β1a-IM for MS, we aimed to assess the changes in direct costs and likelihood of health service utilization for persons with multiple sclerosis (MS) treated with Interferon (IFN) β1a-IM.

METHODS A healthcare claims database of US employees from 2001-2008 was used to identify patients with MS (1 IFN β1a-IM prescriptions [Rx] or an IFN β1a-IM Rx + MS diagnosis [ICD-9=340.X]). Employees with eligibility 6 months before and after their initial IFN β1a-IM Rx and no other disease-modifying therapies were included in the analysis. Non-parametric tests and t-tests were used to compare the mean and median direct medical costs and the likelihood of health service utilization before and after initiation of IFN β1a-IM.

RESULTS Data from 68 employees with MS that took IFN β1a-IM (42 employees with health service utilization data) were eligible for analysis. All direct medical cost changes were significant (P<0.01). Mean medical costs decreased by $2872 (54%) from $5339 to $2467 and median costs decreased by $3691 (80%) from $4596 to $805. Significant (P<0.05) decreases in the likelihood of health service utilization were noted for the following: 11.9% for emergency department from 11.9% to 0%, 23.8% for outpatient hospital from 64.3% to 40.5%, and 16.7% for "other" (including home-care, ambulance, mobile unit, and unknown) from 31.0% to 14.3%. Inpatient hospital care decreased non-significantly (P=0.096) by 11.9% from 16.7% to 4.8%, while lab and office claims stayed the same (7.1% and 92.9%, respectively).

CONCLUSIONS Direct medical costs decreased for IFN β1a-IM patients after therapy initiation, with reduced use of emergency department, inpatient and outpatient hospital care, and other services. These differences suggest the costs of Interferon β1a-IM are partially offset by medical care saving.