

## **Work Productivity (WP) and Financial Impacts of Multiple Sclerosis in Sweden: A Nationwide Register-based Longitudinal Study**

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**BACKGROUND:** Multiple sclerosis (MS) is a progressive, disabling neurologic disease that impacts quality-of-life and work productivity. This study analyzed population-level work productivity (WP) outcomes such as employment status, sickness absence and earned income among patients with MS in Sweden.

**METHODS:** Data came from four national registers provided by the National Board of Health and Welfare in Sweden. Patients with  $\geq 1$  diagnosis of MS (ICD-10 G35) were selected from 1/1/2001 to 12/30/2017. Date of first MS diagnosis was designated as index date with baseline as 1-year prior to index date. Patients with index date coinciding with death date or censoring date were excluded. WP outcomes were evaluated for all patients aged 18-65 years with at least 1-year post-index follow-up for a maximum of 16 years. Income was adjusted to 2018 using Labor Cost Index.

**RESULTS:** At index, mean ( $\pm$ SD) age of 26,219 patients with MS was 46.3 ( $\pm$ 15.4) years; 68.9% were female. The most frequent comorbidities at baseline were demyelinating diseases of central nervous system (9.6%), optic nerve and visual pathways disorders (7.0%), and visual disturbances and blindness (4.6%). Post-index, employment rates declined over time with 62.3% (n=13,459/21,602) employed at 1-year, 53.6% (n=5,225/9,741) employed at 10-years and 47.16% (n=1,119/2,373) employed at 16-years. Of those employed at 1-year (n=13,459), 44.8% reported sickness absence and 26.5% had sickness absence of  $\geq 3$  months. Income also declined over time with median annual earned income (interquartile range) at years 1, 10 and 16 as €21,305 (€0, €35 106.49), €11 837.50 (€0, €32900.78) and €1,054.95 (€0, €29,393.61), respectively.

**CONCLUSIONS:** MS imposes a substantial WP loss with financial consequences to the patients, employers and the society, as a whole, in Sweden. Overall management to MS must aim to not only reduce disability and associated symptoms, but also help improve patient overall work productivity.

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