The Economic Burden of Multiple Sclerosis in the United States

Estimate of Direct and Indirect Costs

Bruce Bebo, PhD, Inna Cintina, MPA, MA, Nicholas LaRocca, PhD, et al.

Cite as: Neurology® 2022;98:e1810-e1817. doi:10.1212/WNL.0000000000200150

Study Question

What was the direct and indirect economic burden of multiple sclerosis (MS) in the United States in 2019, and how will this burden shift in the next 20 years?

What Is Known and What This Paper Adds

MS is the leading progressive neurologic condition of young adults in the United States. People with MS (PwMS) have higher health care utilization compared to people without MS, and the effects of MS often result in considerable disruption to daily life and work/employment opportunities. This study estimates the total economic burden of MS in the United States in 2019.

Methods

This study used a prevalence-based approach to estimate national economic MS burden. Claims from the Medicare Current Beneficiary Survey, Medicare Standard Analytical File, and Optum de-identified Normative Health Information System were used to obtain direct medical costs. Per-person direct medical costs included primary payer paid amount, out-of-pocket expenses, and third party paid amounts. We determined per-person direct medical costs for 2017–2019 and calculated a 3-year average cost. We calculated direct excess medical costs as the difference in the annual per-person costs between MS samples and controls matched by age, sex, race/ethnicity, and insurance. Medication costs, identified from the pharmacy claims, included disease-modifying therapy (DMT) costs. We identified in-clinic administration of medication from outpatient/physician claims. Indirect costs included future earnings loss due to premature mortality, reduced workforce participation due to early retirement, productivity loss for those in the workforce, productivity loss from reduced participation in social activities, and nonmedical costs of MS. A survey was used to collect indirect costs (e.g., labor market productivity losses, costs of paid and unpaid caregivers, home modification) from 946 PwMS. The number of people with MS and the economic burden over the next 20 years were projected assuming current population growth and mortality trends. We assumed that MS incidence increased 2.3% annually and that mortality rates and per-person burden remained constant.

Results and Study Limitations

The estimated total economic burden of MS in the United States in 2019 was $85.4 billion (direct medical cost: $63.3 billion; indirect and nonmedical costs: $22.1 billion). The largest components of the direct cost were retail prescription medication (54%), clinic-administered drugs (12%), and outpatient medication and administration (9%). The average excess per-person annual medical cost for PwMS was $65,612. DMTs accounted for the largest proportion of this ($35,154). The average indirect and nonmedical costs (including caregivers’ costs) were $18,542 and $22,875 per PwMS, respectively. Lost earnings due to premature death, presenteeism, and absenteeism losses were the largest indirect cost components. Limitations of this study include the fact that certain strata-specific estimates might be subject to small sample size and outlier issues.

Study Funding and Competing Interests

This study was funded by the National Multiple Sclerosis Society. Some authors report receiving consulting fees and research support from commercial interests. Go to Neurology.org/N for full disclosures.
The Economic Burden of Multiple Sclerosis in the United States: Estimate of Direct and Indirect Costs
Bruce Bebo, Inna Cintina, Nicholas LaRocca, et al.
Neurology 2022;98:e1810-e1817 Published Online before print April 13, 2022
DOI 10.1212/WNL.0000000000200150

This information is current as of April 13, 2022

Updated Information & Services
including high resolution figures, can be found at:
http://n.neurology.org/content/98/18/e1810.full

References
This article cites 21 articles, 2 of which you can access for free at:
http://n.neurology.org/content/98/18/e1810.full#ref-list-1

Citations
This article has been cited by 4 HighWire-hosted articles:
http://n.neurology.org/content/98/18/e1810.full##otherarticles

Subspecialty Collections
This article, along with others on similar topics, appears in the following collection(s):
Autoimmune diseases
http://n.neurology.org/cgi/collection/autoimmune_diseases
Cost effectiveness/economic
http://n.neurology.org/cgi/collection/cost_effectiveness_economic_
Multiple sclerosis
http://n.neurology.org/cgi/collection/multiple_sclerosis

Permissions & Licensing
Information about reproducing this article in parts (figures, tables) or in its entirety can be found online at:
http://www.neurology.org/about/about_the_journal#permissions

Reprints
Information about ordering reprints can be found online:
http://n.neurology.org/subscribers/advertise