

Revisiting MS Prevalence in the 21st Century: Exploration Based on a Large Representative US-based Real-World Cohort

Allison Bryant, MPH, Michael Behling, MPH, Shannon Cerf, PharmD, Richard Gliklich, MD
OM1, Inc, Boston, MA, USA



Background

- Quantifying the disease burden and characteristics of patients with multiple sclerosis (MS) is critical for the diagnosis and management of this heterogeneous, debilitating disease.
- Recent estimates from claims databases nearly double the widely reported prevalence of MS in the United States (estimated at 400,000 or approximately 123 per 100,000 patients)¹, prompting the creation of a national surveillance registry.

Objective

The objectives of this analysis were:

- To estimate the prevalence of MS in the US using a large, representative database of patients with linked electronic medical record (EMR) and claims data
- To characterize the MS population in the US by examining patient demographic and clinical characteristics

Methods

- The OM1 Data Cloud (OM1, Boston, MA) collects, links, and leverages structured and unstructured data, including extensive clinical and claims data on patients from multiple payers seen in a variety of provider practice types across the US with data from 2013 through the present.
- An ongoing, continuously enrolling cohort of MS patients who are prospectively followed was developed using a case definition for MS based on diagnosis and medication codes.
- Prevalence was estimated based on the number of adult patients ≥ 18 years in the MS cohort over the total adult patients in the OM1 Data Cloud from 2013 to 2019.
- Selected comorbidities were defined by the presence of at least 1 diagnosis code.

Results

- Of the 203 million adult patients in the OM1 Data Cloud, approximately 613,000 patients met the case definition for MS and were included in the MS cohort for a prevalence of 302 per 100,000 patients.
- The average age of patients was 55 years (SD 13.9), 75% of patients were female, and the majority were Caucasian (86%) (Table 1).
- The prevalence was highest in the 55-64 age group, with a female to male ratio of 2.6 to 1 (Figure 1).
- Common comorbidities included depression (35%), anxiety (30%), diabetes (13%), and malignant cancer (8%) (Table 1).
- Prevalence was higher in the Midwest and North census regions (337 and 318 per 100,000, respectively) than in the West and South (289 and 284 per 100,000, respectively) (Figure 2).
- Approximately 28% of patients had a history of treatment with at least one disease-modifying therapy (DMT) and 5% had more than one. The most common DMTs were glatiramer acetate (10%), interferon beta 1a (6%), and dimethyl fumarate (5%). 43% of patients had corticosteroid use (at any time) (Table 1).

Table 1. Patient Demographic and Clinical Characteristics

	N = 613,432
Age, mean (SD)	55 (13.9)
Sex, n (%)	
Female	460,358 (75%)
Male	153,074 (25%)
Race, n (%)	
Caucasian	161,898 (86%)
African American	24,099 (13%)
Asian	1,164 (0.6%)
Other	1,459 (0.8%)
Unknown	424,812
Selected comorbidities, n (%)	
Depression	211,791 (35%)
Anxiety	185,298 (30%)
Diabetes	81,731 (13%)
Malignant cancer	51,251 (8%)
DMT use (at least 1), n (%)	173,872 (28%)
DMT use (>1), n (%)	28,661 (5%)
Corticosteroid use (any time), n (%)	266,090 (43%)

Figure 1. MS Prevalence by Sex and Age Group

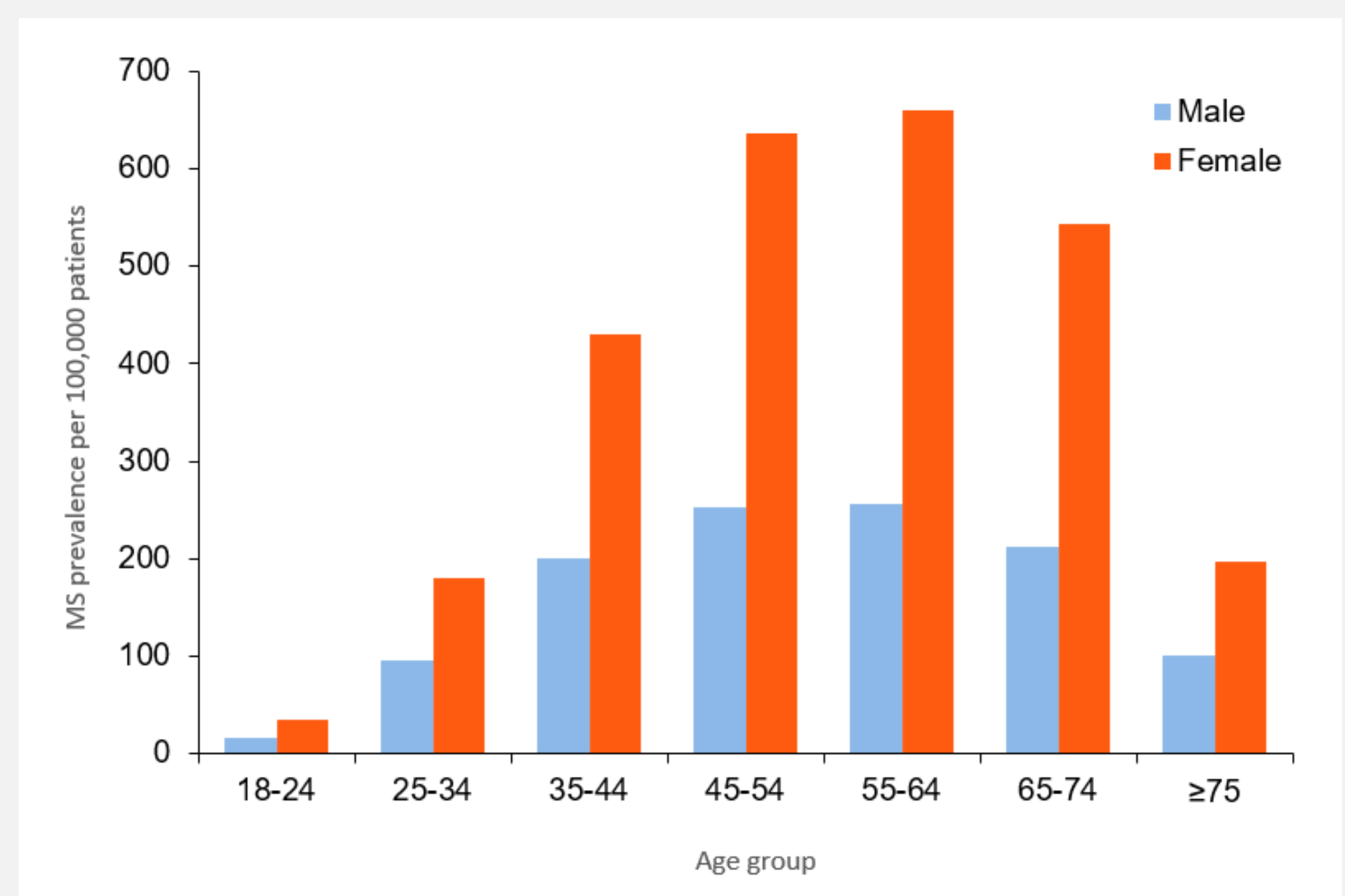
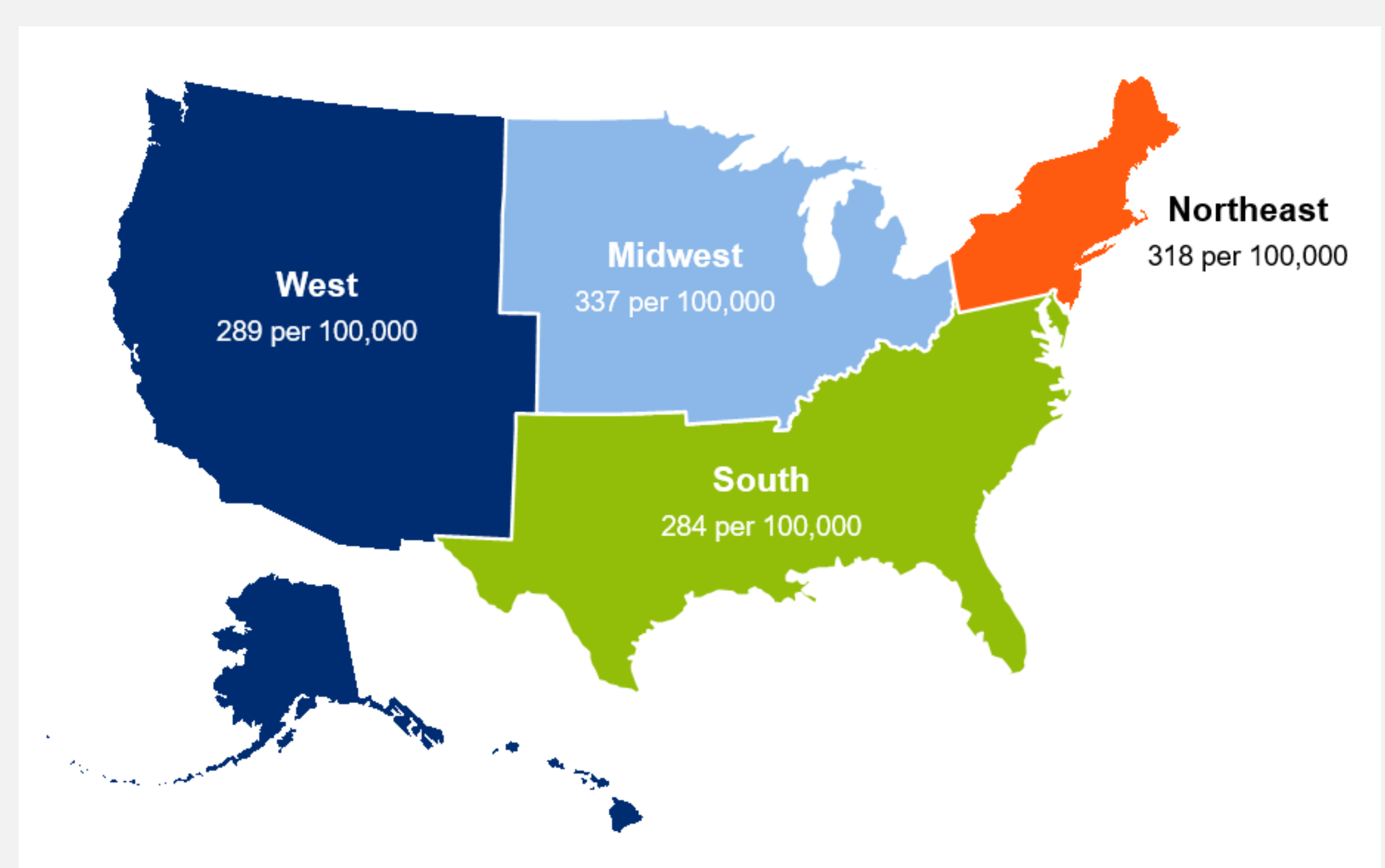


Figure 2. Prevalence of MS by US Region



Conclusions

- The prevalence of MS in the OM1 Data Cloud is more than double commonly referenced estimates.
- This finding is important for planning the provision of healthcare services and motivating the development of novel therapies.
- Given that less than one-third of patients received DMTs, further investigation into patterns of treatment use to understand unmet clinical need is warranted.

¹Wallin MT, Culpepper WJ, Campbell JD, et al. The prevalence of MS in the United States: a population-based estimate using health claims data. *Neurology* 2019;92:e1029-e1040.