

AAN 73rd ANNUAL MEETING ABSTRACT

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Abstract Title: Anomalously Warm Weather and Acute Care Visits in Patients with Multiple Sclerosis: A Retrospective Study of Privately Insured Individuals in the U.S.

Press Release Title: Could Rising Temperatures Send More People with MS to the Hospital?

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Objective: Quantify the impact of anomalously warm weather for risk of multiple sclerosis (MS) related outpatient, emergency department, and inpatient visits in the United States.

Background: Heat sensitivity is a recognized clinical feature of MS a chronic demyelinating disorder of the central nervous system. Periods of anomalously warm weather are expected to become more frequent under climate change, yet few studies have specifically examined the health services implications of weather anomalies for individuals living with MS.

Design/Methods: Retrospective cohort study of individuals with MS aged 18–64 years in a nationwide patient-level commercial and Medicare Advantage claims database. Based on previously validated algorithms, individuals with MS were identified as those with at least three MS-related claims for inpatient, outpatient or disease-modifying therapy claims within a 365-day period. We defined anomalously warm weather as any month in which local average temperatures exceeded the long-term average temperature for that month by at least 1.5°C. We used generalized log-linear models to estimate the implications of anomalously warm weather for MS-related inpatient, outpatient and emergency department visits.

Results: From 75,395,334 individuals we identified 106,225 with MS (0.14%). The majority were women (76.6%) and aged 36–55 years at baseline (59.0%). In adjusted generalized log-linear models, warm weather anomalies were primarily associated with acute care visits: we found increased risk of emergency department visits (relative risk [RR] = 1.04, 95% CI: 1.03–1.06) and inpatient visits (RR = 1.03, 95% CI 1.01–1.055) related to MS. Effect estimates were similar for men and women, strongest among older individuals and exhibited substantial regional and seasonal variation.

Conclusions: As global temperatures rise, individuals with MS may represent a sub-population uniquely susceptible to associated periods of anomalously warm weather, with implications for both health care providers and systems.

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