Abstract title: Healthcare resource utilisation and disease-modifying therapy use over time among adults with newly diagnosed multiple sclerosis: a retrospective cohort study from Alberta

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Background: Understanding healthcare resource utilisation and disease-modifying therapy (DMT) use may identify gaps in care and treatment for people living with multiple sclerosis (PwMS) that can be used to improve the provision of health services. **Methods:** Administrative data was used to identify adults newly diagnosed with MS (MS incident date 2016-2019) in Alberta. Annual healthcare resource utilisation and DMT use was determined from two years before (Y-2) to the fourth year after (Y+4) the MS incident date, up to 2020 where available. Kaplan-Meier time-to-event was used to calculate time to DMT initiation. **Results:** A total of 1,475 PwMS were included. The proportion with ≥1 hospitalization (Y-2, Y-1: 10%, 15%), emergency department visit (34%, 54%), ambulatory care visit (42%, 72%), and physician visit (91%, 98%) increased over the two years before the MS incident date, was greatest during Y+1 (hospitalization: 29%; emergency department: 53%; ambulatory care: 96%; physician: >99%, MS tertiary clinic: 75%) and largely decreased thereafter (Y+2 to Y+4). Among all individuals, less than half received ≥1 DMT dispensation annually (Y+1: 37%: Y+2: 47%; Y+3: 47%, Y+4: 43%), and initiation occurred a median of 2.3 years after the MS incident date. Among those who received ≥1 DMT dispensation, base DMT use (glatiramer acetate, peg- and interferon beta-1a/b,

dimethyl fumarate, teriflunomide) decreased from 84% in Y+1 to 66% in Y+4, and high-efficacy DMT use (ocrelizumab, natalizumab, alemtuzumab, cladribine, fingolimod) increased from 16% in Y+1 to 41% in Y+4. **Conclusions:** Current pharmacological standards for treating MS outline the importance of starting DMTs soon after MS diagnosis to limit accumulation of disability. Our results suggest that there are gaps in DMT treatment for PwMS in the first 4 years after MS diagnosis. Further work is needed to address these gaps and to provide timely access to DMT initiation and escalation for PwMS.

Keywords: disease-modifying therapies, prodrome, multiple sclerosis, healthcare research, drug utilization evaluation

Abstract theme: advance treatment and care

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