Health Care Utilization Trajectories Predict Nursing Home Entry Among People with MS

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Introduction

- People with MS (PwMS) often need increasing amounts of care over time
- Care needs leads to nursing home (NH) entry in PwMS; rates range from 5-10% [1-3]
- Early identification of individuals at risk of NH entry would inform service delivery and support aging-in-place.

Objective: Determine if 10-year patterns of ambulatory physician use, prescription medication use, hospitalizations, and intensity of hospital care (RIW) provide unique information about the likelihood of nursing home entry among people with MS.

Methods

Data source: Population-based, de-identified claims data from the Population Health Research Data Repository at the Manitoba Centre for Health Policy.

Analytic steps: (1) Identified all Manitobans with MS between 1984 and 2012.
(2) Identified cases (NH entrant since 2005).
(3) Matched to controls (non-NH residents) by age, sex, region, and MS diagnosis.
(4) Generated 10-year trajectories of health care utilization for all cases and controls,
(5) Determined if trajectory group membership predicted NH entry after controlling for SES, continuity of care (COC), comorbidities, and region (urban/rural).

Results

- Between 1984 and 2012, 5422 people with MS were identified in Manitoba.
- We identified 226 cases and 896 controls (total =1122).
- The average age of the cases was 48.35 (SD=13.25) and 44.91 for the controls (SD=11.58).
- The percentage of females for the cases was 64%, and for the controls, 61%.

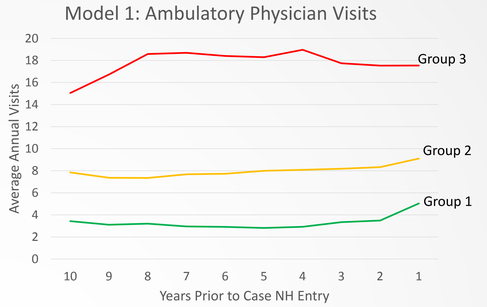
Trajectories:

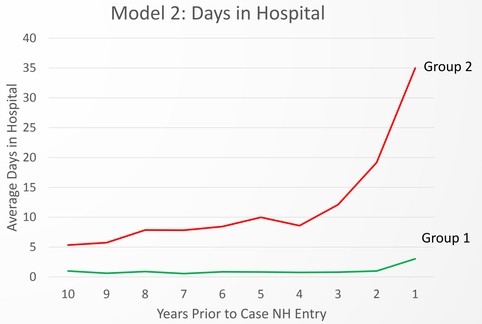
- 3 utilization trajectories were identified for ambulatory physician visits (Model 1).
  - More visits = ***protective*** of NH entry after adjusting for sex; age at dx; COC; region; SES; and 6 comorbid conditions
  - Group 2 vs 1: OR 0.59 (0.42-0.85)
  - Group 3 vs 1: OR 0.40 (0.24-0.66)

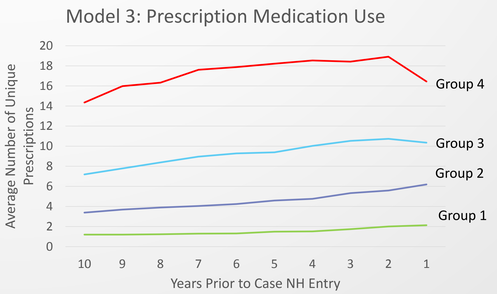
- 2 trajectories were identified for Days in Hospital (Model 2) and Intensity of Hospital Care *(graphic not shown, same as hospital days).*
  - More days and higher RIW = ***predictive*** of NH entry after adjustments (see above)
  - Hospitalization:
    - Group 2 vs 1: OR 10.93 (7.57-15.78)
  - RIW for hospitalization:
    - Group 2 vs 1: OR 7.59 (5.13-11.22)

- 4 trajectories were identified for Prescription Medication Use (Model 3).
  - More scripts = ***predictive*** of NH entry after adjustments (see above)
  - Group 2 vs 1: OR 1.38 (1.01-1.89)
  - Group 3 vs 1: OR 2.40 (1.5-3.86)
  - Group 4 vs 1: OR 1.10 (0.48-2.38)

Results







Discussion

- # of days in hospital over time is a powerful risk factor for NH entry, as is intensity of hospital care over time.
- Since physician visits are protective of NH entry it may be that physicians are:
  - addressing non-MS issues that may influence NH risk.
  - referring PwMS to supportive services.
  - preventing hospital care via on-going health monitoring.
- Data come from 1 province in Canada. Regional generalizability is unknown.

Conclusion

- Patterns of health care utilization over time predict the likelihood of nursing home entry among people with MS, even after accounting for sociodemographic and health related variables.
- These findings may help build a decision tool to aid early identification of people with MS on a trajectory to NH entry.

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References & Acknowledgements

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2 - Minden SL et al. *NeuroRehabilitation;* 2004;19(1):55-67.
3 - Stolp-Smith K et al. *Neurology;* 1998;50(6):1594-1600.

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