Canadian Institute for Health Information
Institut canadien d'information sur la santé

Analysis in Brief
Taking health information further

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Multiple Sclerosis and Inpatient Rehabilitation: A Snapshot of Care

Introduction

Multiple Sclerosis (MS) is the most common neurological disease affecting young adults in Canada.[1] As well, MS affects twice as many women as men, and Canada has one of the highest rates of MS in the world.[2] The information provided in this Analysis in Brief highlights what a typical course of inpatient rehabilitation might look like for a person living with MS, and in what aspects these clients appear to differ from other inpatient rehabilitation client groups. In this respect, the information is useful for those involved in planning and coordinating services for persons living with MS. Data are from the National Rehabilitation Reporting System (NRS) at the Canadian Institute for Health Information (CIHI).

Since 2001, the NRS has been collecting data on adult inpatient rehabilitation services in Canada. As of January 31, 2005, there were over 50,000 pairs of admission and discharge records (i.e. episodes) in the NRS database, submitted by over 80 hospitals in 7 provinces and covering a range of health conditions including strokes, orthopaedic conditions and amputations. Of these, 523 episodes were for persons with MS. While the MS episodes comprise a small fraction of total inpatient rehabilitation episodes in the NRS, they represent a rich source of information on a client group that, as suggested by NRS data, is different than other groups receiving inpatient rehabilitation services. For example, 67% of clients in the MS group are female, and the average age of all MS clients in the NRS is 49 years. By comparison, 59% of all clients represented in the NRS are female and the average age of all clients is 70 years.

1. Multiple Sclerosis Society of Canada, 2004
2. IBID

Accessing Rehabilitation

One of the first steps in accessing inpatient rehabilitation services is the referral process. Most inpatient referrals represented in the NRS (over 90%) are from acute care units in hospitals, as shown in Figure 1.

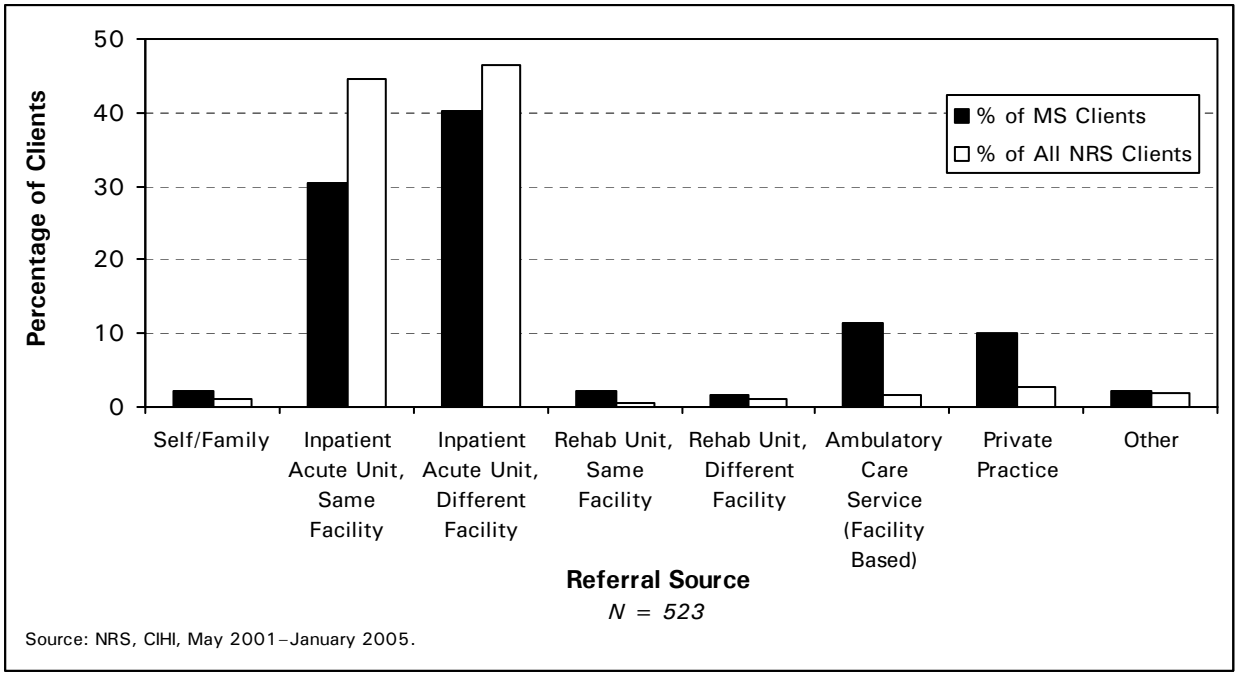

Figure 1. Referral Source for Multiple Sclerosis Clients and all National Rehabilitation Reporting System Clients

While a large proportion of MS clients are similarly referred from acute care units, a relatively higher percentage are also referred from private practice, such as a medical practitioner, or from facility-based ambulatory care services as compared to the entire NRS (21% versus 4%). These numbers suggest that, compared to other client groups, a larger segment of MS clients are being admitted to an inpatient rehabilitation bed directly from the community, rather than via an acute care bed. While admission to acute care is sometimes necessary for medical management of the disease, the ability to access rehabilitation services from the community health network may help some people with MS bypass admission to acute care, where possible and appropriate.

Functional Improvement

A primary goal of physical rehabilitation is to gain improvement in overall function, assisting people to be more independent in their daily lives. In the NRS, improvements in function are measured, in part, with the FIM™ instrument.[3] Figure 2 illustrates average changes in Function Scores[4] between admission and discharge for the population of 523 MS episodes submitted to the NRS between May 1, 2001 and January 31, 2005.

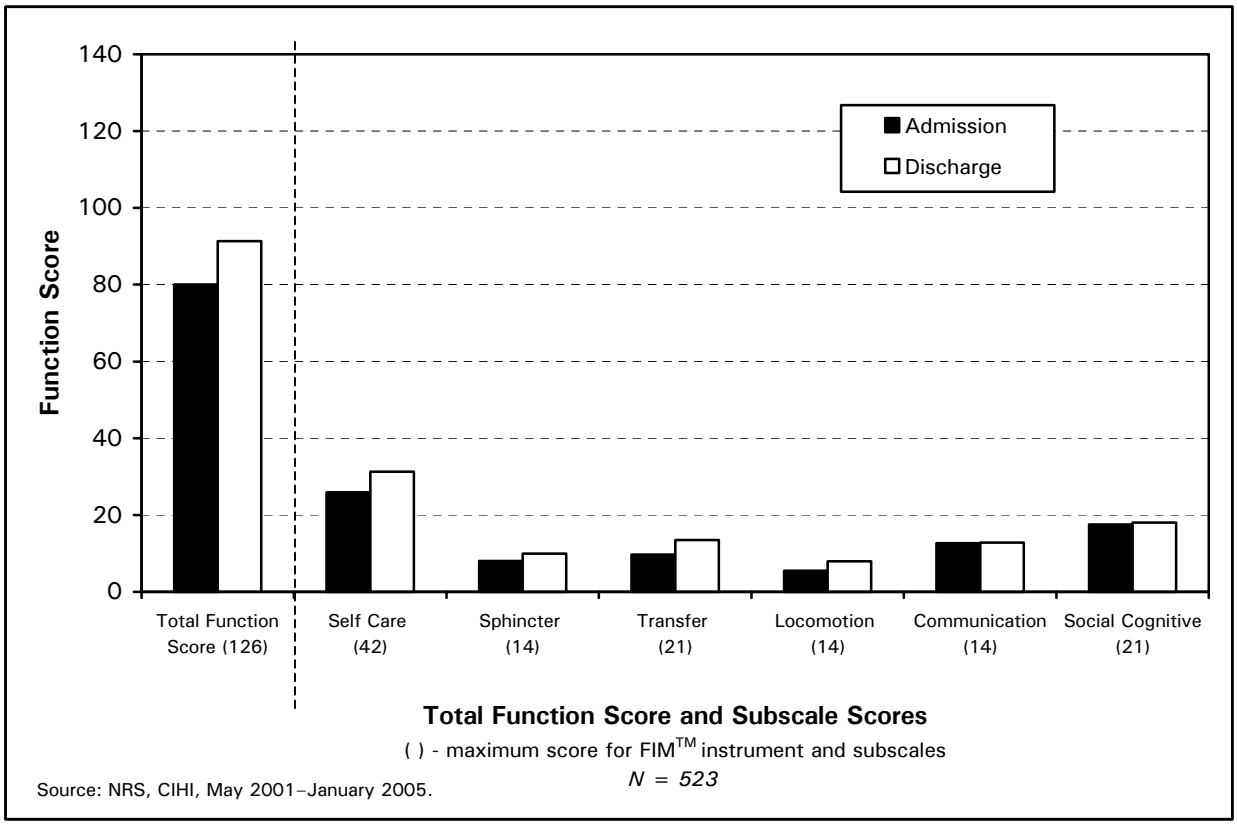

Figure 2. Change in FIM™ instrument Total Function Score and Subscale Scores From Admission to Discharge for Multiple Sclerosis Clients

3. The 18-item FIM™ instrument referenced herein is the property of Uniform Data System for Medical Rehabilitation, a division of UB Foundation Activities, Inc. 2005. (See Appendix)
4. Function Scores referenced in this document are based on data collected using the FIM™ instrument.

Function Scores are derived from data collected using the 18-item FIM™ instrument, which is divided into six subscales that group similar areas of function. Average improvements for persons with MS are most pronounced in the Self-Care, Transfer, and Locomotion subscales. These three areas have score increases of 5.4, 3.8 and 2.4 between admission and discharge, respectively. Improvements in cognitive subscale scores were less pronounced, with score increases of 0.2 and 0.5 between admission and discharge for the Communication and Social Cognitive subscales, respectively.[5] Note that the maximum subscale scores (as indicated in the figure) vary depending on the number of FIM™ instrument items in each subscale. Refer to the Appendix for a more detailed description of the FIM™ instrument and its subscales.

Readmissions to Rehabilitation

In the NRS, clients are classified under the "Readmission" Admission Class if they are admitted for inpatient rehabilitation with a history of a previous inpatient rehabilitation admission for the same condition. According to the Admission Class data, clients with MS appear to be readmitted to inpatient rehabilitation more frequently than other NRS clients. As shown in Figure 3, 15% of clients with MS represented in the NRS are classified as "Readmissions", compared to only 3% for all NRS clients.

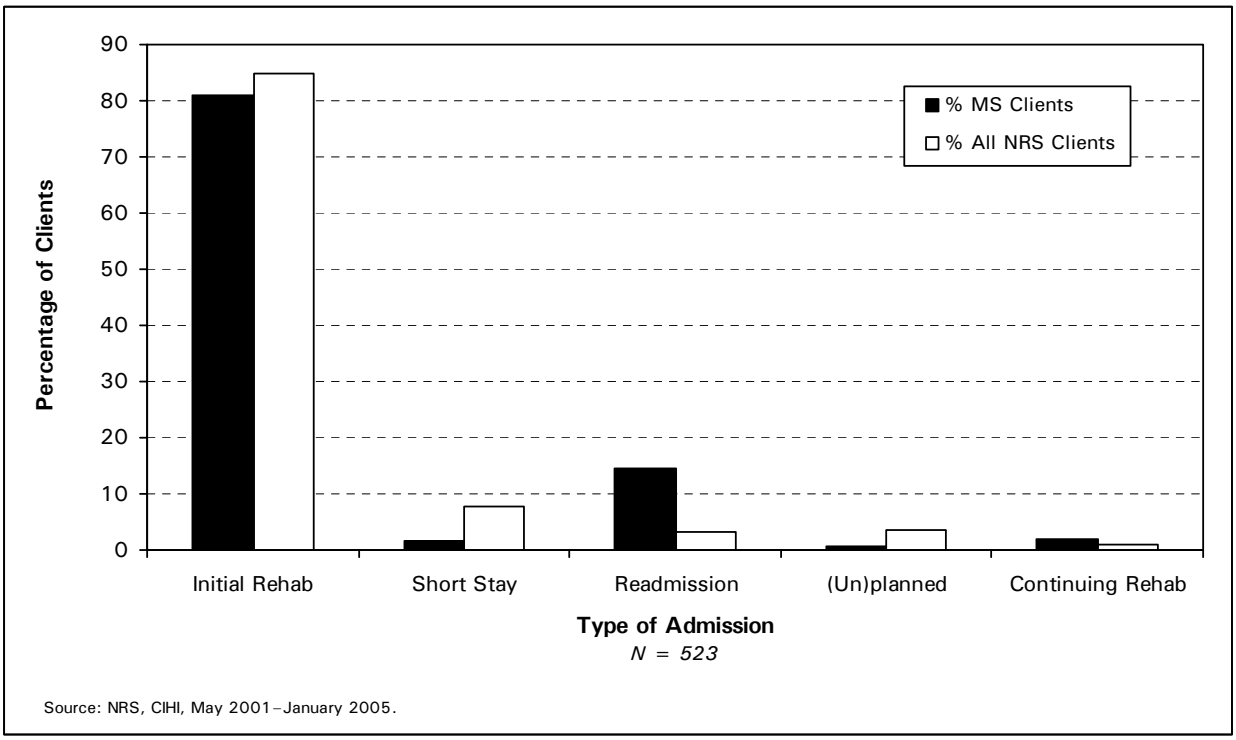

Figure 3. Admission Class Distribution for Multiple Sclerosis Clients and all National Rehabilitation Reporting System Clients

[5] The differences from admission to discharge are considered statistically significant at a 95% confidence interval (CI) for all subscales.

For many people living with MS, the disease is characterized by a pattern of relapse and remission, sometimes necessitating repeat visits for inpatient rehabilitation. In addition, it may be possible that those MS clients who are followed through specialized neurological programs are tracked more formally, suggesting a more consistent use of the "Readmission" classification. Further investigation of these potential reasons may help to explain the higher proportion of readmissions in this population compared to the NRS population as a whole.

Going Home

Eighty percent of MS clients represented in the NRS return to the community at the end of their inpatient rehabilitation stay, with a majority requiring some level of in-home health service (Figure 4).

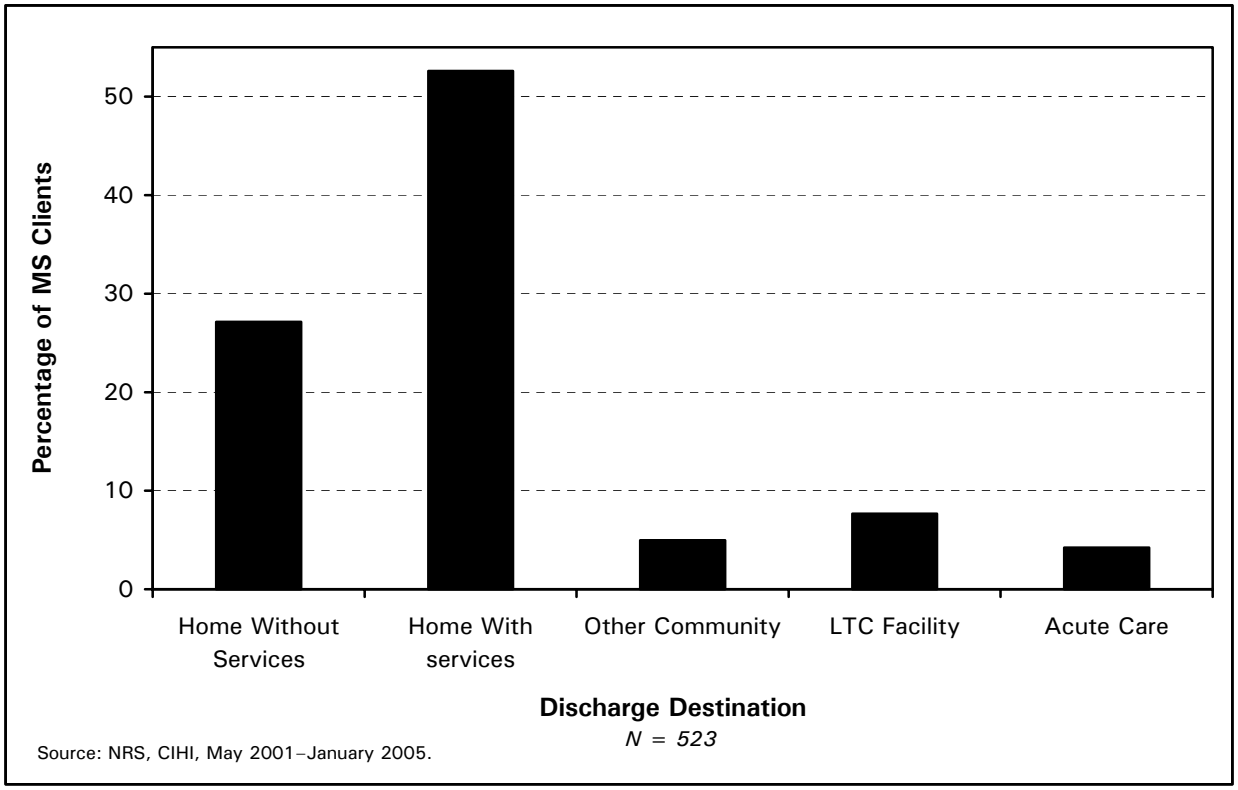

Figure 4. Discharge Destination for Multiple Sclerosis Clients

A further 12% of clients with MS are discharged to long-term care (LTC) or to acute care. The finding that 80% of clients are discharged to a community setting is noteworthy. Given that the average age in the NRS of a person with MS is approximately 20 years younger than the average age for all NRS clients, this rate of discharge to the community may relate to the orientation of rehabilitation goals for persons with MS toward helping resume and continue participation in vocational and/or family roles in the community.

Conclusion

This Analysis in Brief examines the available data on clients with MS who have been admitted for a course of inpatient rehabilitation and whose data were reported to the NRS. While the available data may not necessarily be representative of all MS client episodes in Canada due to the partially voluntary nature of NRS participation by hospitals, it is an opportunity to highlight some of the information that is available for this clientele. As participation in the NRS increases across Canada, CIHI's ability to explore more extensive and even more meaningful analyses on this group will expand, with the overall goal of supporting decision-making at various levels.

For additional information on the National Rehabilitation Reporting System (NRS) and other NRS publications, please contact rehab@cihi.ca or visit the NRS Web site at www.cihi.ca\nrs.

Appendix

The FIM™ instrument and Subscales

The FIM™ instrument is a proprietary outcome measure used in the NRS to measure client function at admission and discharge. It is composed of 18 items (13 motor items and 5 cognitive items) that are rated on a seven-level scale representing gradations from independent (7) to dependent (1) function, for an overall maximum score of 126 (18 items x 7). The FIM™ instrument is a measure of disability, and looks at the caregiver burden associated with the level of disability.

The 18 FIM™ instrument items are grouped into six subscales based on similar areas of function. The subscales have varying numbers of FIM™ instrument items included, so that the maximum score for the individual subscales may not be the same. In other words, a subscale containing 2 items will generally show a smaller score increase from admission to discharge than a subscale containing 6 items. Refer to the table below for a list of the six FIM™ instrument subscales, the respective items included, and the maximum scores for each.

Subscale	# Items	Items Included	Maximum Score
Self-Care	6	Eating, Grooming, Bathing, Dressing Upper Body, Dressing Lower Body, Toileting	42
Sphincter	2	Bowel, Bladder Control	14
Transfer	3	Bed/Chair, Toilet, Tub	21
Locomotion	2	Walk/Wheelchair, Stairs	14
Communication	2	Expression, Comprehension	14
Social Cognitive	3	Social Interaction, Problem Solving, Memory	21
	18		**126**