Inpatient Rehabilitation in Canada

2003–2004

Special Topic:
A Look at the Older Population

National Rehabilitation Reporting System

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Sincere appreciation goes to the clients and rehabilitation teams at participating hospitals. Their role in the National Rehabilitation Reporting System (NRS) is an essential and necessary precursor to all of CIHI's rehabilitation reporting activities.

Executive Summary

Inpatient Rehabilitation in Canada, 2003–2004, is the second public report based on data from the National Rehabilitation Reporting System (NRS), developed and maintained by the Canadian Institute for Health Information (CIHI).

The intent of the report is to shed some light on rehabilitation services in participating Canadian hospitals and on the types of clients who receive them, as well as to provide characteristics of various rehabilitation activities and clinical outcomes. This year's report also focuses on rehabilitation clients over the age of 74, who made up almost half of all inpatient rehabilitation admissions in 2003–2004.

The analyses contained within this report are based on data for 26,800 clients who were discharged from 79 participating hospitals in 7 provinces during 2003–2004 and for who complete admission and discharge assessments were successfully submitted to CIHI.

Chapters 1 and 2 include a summary of the development of the NRS, an overview of the analytical methodology and some summary statistics on the types of rehabilitation clients. Administrative information, such as length of stay and referral patterns, is also presented. Chapter 3 compares characteristics across a range of client groups, providing more specific information on the groups that contain the largest numbers of rehabilitation episodes in the NRS.

Chapters 4 through 6 examine a sub-population of the NRS; those clients aged seventy-five years and over that received inpatient rehabilitation services from participating NRS facilities in 2003–2004. Information is presented on the demographics, health characteristics and outcomes of this older client group, as a means of identifying areas where this group differs from their younger counterparts, and also to promote awareness of the specific needs of these rehabilitation clients.

Administrative and clinical information described throughout most of the report includes the number of days clients wait for admission to rehabilitation, reasons for discharge, improvement in functional status and demographic characteristics. Potential directions for future NRS analytical activities and topics for subsequent annual reports are also highlighted.

In order to access aggregate data used to produce the charts and graphs presented in the report, source tables are available on the CIHI Web site at www.cihi.ca under "Quick Stats". Throughout this report, references to the relevant tables can be found at the end of each paragraph or section.

Key Findings From the Report

Some of the key findings contained in this report are as follows:

- The average age of inpatient rehabilitation clients was 70 years. (Chapter 2)
- Among clients for whom a date ready for admission was known, 52% were admitted to inpatient rehabilitation the same day they were deemed clinically ready. (Chapter 2)
- Orthopaedic clients tended to be older females in 2003–2004, while traumatic brain and spinal cord dysfunction clients tended to be younger males. (Chapter 3)
- The median length of stay for all NRS inpatient rehabilitation clients was 20 days, but length of stay varied according to Rehabilitation Client Group. (Chapter 3)
- Two-thirds of clients over the age of 74 were admitted to inpatient rehabilitation for treatment of either an orthopaedic condition or a stroke. (Chapter 4)
- More than half of older clients admitted to inpatient rehabilitation had a pre-existing diagnosis of hypertension. (Chapter 4)
- Hip fracture clients over the age of 84 had the longest median length of stay of all the older orthopaedic clients. (Chapter 6)
- Nearly half of all older NRS clients in 2003–2004 were referred for home care services on discharge from rehabilitation. (Chapter 6)

The National Rehabilitation Reporting System (NRS)

The NRS is primarily intended to support data collection by hospitals for rehabilitation clients who are aged 18 years or older. The rehabilitation services are provided in specialized rehabilitation hospitals and in general hospitals with rehabilitation units, programs or designated rehabilitation beds.

By facilitating the collection of standard information, the NRS provides an opportunity to enhance the knowledge surrounding inpatient rehabilitation services across the country. Due to its voluntary nature, the NRS does not have comprehensive coverage of all inpatient rehabilitation services at this time. As a result, information derived from the NRS may not reflect the full picture of hospital-based inpatient rehabilitation in Canada.

More information on the NRS is available at www.cihi.ca/nrs or by contacting rehab@cihi.ca by email.

The Canadian Institute for Health Information (CIHI)

The Canadian Institute for Health Information (CIHI) is an independent, pan-Canadian, not-for-profit organization working to improve the health of Canadians and the health care system by providing quality health information. CIHI's mandate, as established by Canada's health ministers, is to coordinate the development and maintenance of a common approach to health information for Canada. To this end, CIHI is responsible for providing accurate and timely information that is needed to establish sound health policies, manage the Canadian health system effectively and create public awareness of factors affecting good health.

For more information, visit the CIHI Web site at www.cihi.ca.

Important Notice

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

Rehabilitation Client Groups adapted with permission from the UDS$_{MR}$ impairment codes.

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Chapter 1. Introduction and Background

Objectives of the Report

Inpatient Rehabilitation in Canada, 2003–2004 is the second public report based on data from the National Rehabilitation Reporting System (NRS). The NRS was developed by the Canadian Institute for Health Information (CIHI) in 2001 to support inpatient rehabilitation service planning activities and policy development.

This year's report provides information on inpatient physical rehabilitation services that occurred between April 1, 2003 and March 31, 2004 in participating rehabilitation facilities. The comprehensive report was developed by CIHI to provide additional information for people involved with or interested in the provision of inpatient rehabilitation services, including clinicians, hospital managers, policy makers and organizations representing rehabilitation clients. In addition to a general overview, *Inpatient Rehabilitation in Canada, 2003–2004* also includes a series of chapters focusing on "older clients"—those NRS clients over the age of 74 years who received inpatient rehabilitation services in 2003–2004.

The overall goal of this report is to enhance knowledge about inpatient rehabilitation services in participating facilities across the country. In doing so, CIHI hopes to facilitate discussion on the current state of hospital-based rehabilitation and on future challenges and opportunities facing the sector.

Specific objectives for the report are:

- To provide background information on the NRS;
- To present aggregate 2003–2004 data from the NRS specific to the characteristics of rehabilitation population, the services they receive, and their rehabilitation outcomes;
- To provide data on older Canadians—clients aged 75 years and over who received rehabilitation services from participating facilities in 2003–2004; and
- To stimulate discussion on the information needs for the inpatient rehabilitation sector and further enhancement of the NRS.

Older Canadians

Health care professionals and policy makers in Canada are well aware that geriatric clients are extensive users of health care services. NRS data suggest that this is consistent for inpatient rehabilitation services. In 2003–2004, men and women over the age of seventy-four years accounted for nearly half (47%) of the NRS client episodes submitted. Of note, the 2004 census[1] from Statistics Canada showed that men and women in this age group made up of only 6.1% of the Canadian population. Given this, it was considered appropriate to take a closer look at this age group using the available data from the past year. Chapters 4 to 6 of this report examine the health status of the rehabilitation population over the age of seventy-four, the professional resources involved in the rehabilitation of this group, and patient outcomes following rehabilitation intervention.

[1] Statistics Canada, *Population by sex and age group.* 2004

Traditionally, the milestone age that denotes the "senior citizen" is sixty-five. However, advances in health care and other determinants of health are improving quality of life and increasing life expectancies to the point where many at this age are still leading active lives with few or no health complications. Research is increasingly focusing on the 75-and-over age category as being more reflective of the true "geriatric" population. In a 2001 report for the Ontario Ministry of Health and Long-Term Care, Borrie et al. recommended, "provincial rehabilitation resource planning include appropriate benchmarks for geriatric rehabilitation for the 75 + age population".[2] Given this trend, as well as the large percentage of data in the NRS from clients 75 years of age and over, a major part of this report will examine this group of older clients. By focusing on the data available for this group, CIHI hopes to:

- Promote awareness of the specific health status characteristics and rehabilitation needs of older clients;
- Potentially identify areas where the needs of this population and the resources involved in their care differ from that of the rest of the rehabilitation population; and
- Encourage discussion in rehabilitation circles about best practices in caring for these rehabilitation clients.

Organization of the Report

Inpatient Rehabilitation in Canada, 2003–2004 contains seven chapters. The first three chapters are presented in a similar format to last year's report, *Inpatient Rehabilitation in Canada, 2002–2003*. This was done intentionally to allow comparison across the reports in the two years. CIHI acknowledges that there may be few changes in rehabilitation patterns in a single year. It is anticipated, however, that data received over the next few years will make trending analyses more valuable. Consequently, certain aspects of this report will be repeated annually.

Chapter 1 provides an introduction to the report, including a brief history of the NRS as well as its current status. An overview of the methodology used in the analyses and reporting is provided. This chapter also examines the role of the NRS in facilitating information collection, analysis and dissemination. Some contextual information on the facilities participating in the NRS is provided to support an enhanced understanding of the inpatient rehabilitation sector. No facilities that have submitted data to the NRS are identified by name in this report.

Chapter 2 provides an overview of the socio-demographic characteristics of the clients who were discharged from participating facilities following rehabilitation during fiscal year 2003–2004. Summary statistics such as living arrangements, informal support and age/sex distribution, are presented in order to provide a snapshot of the rehabilitation population. Administrative information, such as length of stay and referral patterns, is also presented.

[2] Borrie M, Stolee P, Knoefel F, Wells J., *Synthesis Research in Geriatric Rehabilitation*. Final Report submitted to the Ontario Ministry of Health and Long-Term Care. August, 2001

Chapter 3 presents data on the Rehabilitation Client Groups (RCG) reported in the NRS. Clients are grouped into RCGs based on the diagnosis or functional impairment that led to the rehabilitation admission. Indicators are presented for the various groups, including days waiting for admission to rehabilitation and reasons for discharge. This chapter also introduces analyses on clinical outcomes assessed during inpatient rehabilitation. Clinicians, managers and policy makers may be particularly interested in this section, which presents some high-level outcomes and the potential factors affecting these outcomes.

Chapters 4 through 6 focus specifically on older NRS clients—the inpatient rehabilitation population aged 75 years and over that received services from participating NRS facilities in 2003–2004. Characteristics are analysed according to the five most-commonly seen RCGs for this age group in 2003–2004: orthopaedic conditions, stroke, medically complex conditions, debilitating conditions, and cardiac conditions. Chapter 4 presents some of the socio-demographic and health characteristics of clients in this age group. Chapter 5 presents information on the facilities that provided rehabilitation services to this group, as well as specifics about the professional services involved in the rehabilitation of these clients. Finally, Chapter 6 examines several outcome-related indicators for this age group according to the above-mentioned RCGs.

Chapter 7 briefly summarizes and discusses some of the major findings from the 2003–2004 report. Potential directions and future NRS analytical activities and topics for subsequent annual reports are also highlighted in this chapter.

While many readers may be familiar with the concepts used within the report, others may be encountering NRS data for the first time. A glossary of terms (Appendix A) is included at the end of the report. Appendix B contains a brief description of each Rehabilitation Client Group (RCG). These appendices will assist readers in understanding the terms and definitions commonly used in the NRS.

The National Rehabilitation Reporting System

The following section provides an overview of the National Rehabilitation Reporting System (NRS), including background, development, scope, and data collection processes.

Hospital-based inpatient rehabilitation is an important component in the continuum of health services in Canada. By facilitating the collection of standardized information on rehabilitation clients, the NRS provides an opportunity to enhance the knowledge surrounding inpatient rehabilitation clients and services across the country.

The NRS was developed to support data collection by facilities for adult inpatient rehabilitation clients. These rehabilitation services are provided in specialized rehabilitation facilities, or in general hospitals with rehabilitation units, programs or designated beds.

Inpatient rehabilitation clients receive services provided by health professionals such as nurses, physiotherapists, occupational therapists and physicians specializing in physical medicine and rehabilitation. These professionals assist clients in maximizing their physical and cognitive functioning through training and education, and prepare them to return to the community following illness or injury. Clients reported in the NRS include only those with a

primary health condition that is physical in nature. As such, the term "rehabilitation" in the context of NRS reporting does not include rehabilitation services provided for a mental health condition or for drug or alcohol addiction.

A cornerstone of the NRS is the concept of human function and the focus of rehabilitation in assisting individuals in achieving maximum independence in daily living, be it at home or in an assisted-living facility. The NRS indicators and reports provide a source of information for defining and describing functional outcomes for individuals who have received rehabilitation services. For greater comparability, this information is grouped according to the nature of the illness or injury. These groups form the basis for NRS reporting and are known as Rehabilitation Client Groups (RCGs). There are 17 major RCGs, including conditions such as stroke, limb amputation and brain injury. A complete list of RCGs is available in Appendix B.

National Rehabilitation Reporting System: Development and Implementation

CIHI has been promoting health information standards for hospital-based inpatient rehabilitation services since 1995, when the organization initiated a national pilot study to develop and evaluate indicators, a minimum data set, and related case-mix grouping methodology. The CIHI pilot study, involving more than 2,000 adult rehabilitation clients, collected information on the characteristics and effectiveness of rehabilitation services in six provinces.

A national prototype reporting system for inpatient rehabilitation services was implemented in April 2000. The development was a component of the Health Information Roadmap Initiative, a collaborative effort between CIHI, Statistics Canada, Health Canada, provincial/territorial health ministries and many others.

Following the launch of the NRS, CIHI began producing comparative reports for facilities in February 2001, focusing on key indicators that were developed during the original CIHI pilot study. These comparative reports provide facilities with information to assess client outcomes, to examine access to inpatient rehabilitation and to evaluate programs and services.

The National Rehabilitation Reporting System Dataset

The NRS consists of data elements grouped into the following major categories:

- **Client Identifiers:** These are data elements used to identify individual client episodes. Client names are never collected for the NRS database.

- **Socio-Demographics:** Information such as birth date, sex, living arrangements and vocational status are collected to provide valuable information on the types of clients admitted to rehabilitation programs.

- **Administrative:** Data are collected on wait times for admission and discharge, service interruptions, and provider types, in order to better understand accessibility to rehabilitation, factors influencing length of stay, and resource utilization.

- **Health Characteristics:** Diagnoses and related comorbidities at admission provide information on conditions most often seen in a rehabilitation setting, and conditions that may affect a client's ability to progress in the rehabilitation program.

- **Activities and Participation:** This is the largest section of the data set and provides clinical data on motor and cognitive functional abilities of rehabilitation clients. The data are collected using the 18-item Functional Independence Measure (FIM™) instrument and other data elements that provide additional detailed information on cognitive functioning abilities of rehabilitation clients. More details on the FIM™ instrument, a standardized assessment tool developed by the Uniform Data System for Medical Rehabilitation (UDS$_{MR}$), are available in Appendix C.

Facilities complete assessments when a client is admitted to, and when they are discharged from, the inpatient rehabilitation program. Facilities can also choose to complete an optional follow-up assessment on their clients between three and six months following discharge from the program. Collection of this follow-up information provides an opportunity to assess sustainability of functional outcomes that were gained during rehabilitation, as well as the level of client re-integration into the community.

Methodological Notes

The following information provides an overview of data quality measures within the NRS and the analyses used for this report. Additional commentaries on methodology and data quality are also included throughout the report, where applicable.

Data Quality and the National Rehabilitation Reporting System

The Canadian Institute for Health Information (CIHI) has incorporated five dimensions of data quality into its corporate *Data Quality Framework*, first implemented during the fiscal year 2000–2001. When used as a conceptual framework, these dimensions can facilitate the assessment of data quality in many types of system-level data holdings.

The framework implementation is part of the larger data quality cycle in which issues are identified, addressed, documented and reviewed on a regular basis. It also standardizes information on data quality and helps to identify priority issues, which in turn is intended to trigger continuous improvements.

The five dimensions of data quality are:

1. *Accuracy*: measures how well information within a database reflects what was supposed to be collected;

2. *Comparability*: measures the extent to which a database can be properly integrated within broader health information systems;

3. *Timeliness*: measures whether the data are available for user needs within a reasonable time period;

4. *Usability*: measures how easily the storage and documentation of data allows users to utilize the data intelligently; and

5. *Relevance:* measures incorporation of all of the above dimensions to some degree, but focuses specifically on value and adaptability.

CIHI conducts regular data quality assessments on the NRS with respect to coding guidelines, data collection software specifications and other validation procedures in order to identify areas of strength and weakness. The five dimensions stated above are used to drive the ongoing evaluation. Areas needing improvement are flagged for further action. CIHI uses this information both internally for data quality improvement, and externally, to respond to stakeholder inquiries.

In each NRS annual report, CIHI highlights any identified data quality issues as they relate to the data. This is intended to give the reader an idea of the level of data quality assessment at CIHI and to outline areas where caution should be used when interpreting the data provided in this report. The 2002–2003 NRS report covered data quality issues relating to scope and coverage of the NRS, capture and collection of data, and item non-response. Some of these concepts will be reviewed in this report, and the following new issues will be presented in subsequent pages:

- Unit Non-Response
- Data Processing Edits
- Currency of Data at the Time of Release

Scope of Participation in the National Rehabilitation Reporting System

As of January 2005, eighty-seven inpatient rehabilitation facilities in Newfoundland and Labrador, Nova Scotia, New Brunswick, Ontario, Saskatchewan, Alberta, and British Columbia have submitted data to the NRS. This number has been growing since the development of the NRS in 2000 and continues to grow. This report provides information based on data received from the 79 participating inpatient rehabilitation facilities across Canada that submitted NRS data for the April 2003–March 2004 reporting period.

Submission of data to the NRS is voluntary for facilities in all Canadian provinces with the exception of Ontario. Effective October 2002, the Ontario Ministry of Health and Long-Term Care mandated submission of NRS data for all facilities with designated adult inpatient rehabilitation beds in the province. No other provincial ministry of health or regional health authority had mandated NRS participation for the 2003–2004 period.

As a result of its primarily voluntary nature, the NRS does not have comprehensive coverage of all inpatient rehabilitation services within Canada. Therefore, the information presented in this report does not necessarily reflect the full picture of hospital-based inpatient rehabilitation in Canada. However, the information from the NRS provides a valuable and growing opportunity to enhance the knowledge surrounding inpatient rehabilitation services across the country and to assist planning and management activities in this sector.

Data Included in This Report

A complete admission and discharge assessment pair is referred to as an episode in the NRS.The data in this report are based on 26,800 rehabilitation episodes for fiscal year 2003–2004. Data are excluded where the client had not yet been discharged from rehabilitation services as of the 2003–2004 fiscal year submission deadline of May 2004. Clients staying fewer than three days in the rehabilitation service are also excluded from this report. These clients were generally discharged for unexpected reasons, including emergency transfers to acute care, death, or departure from the hospital against professional advice. As it is usually not feasible to conduct a full assessment for the purposes of the NRS during such a short stay, these clients are excluded from the analyses. Conversely, data not included in the 2002–2003 annual report because the clients had not yet been discharged at the time the 2002–2003 report was prepared are included in this report if they were discharged in 2003–2004 and a complete discharge assessment was submitted before May 2004. The values for each of these instances are provided below.

Data Included in *Inpatient Rehabilitation in Canada, 2003–2004*

1	Clients admitted in 2003–2004	28,441
2	Clients admitted in 2003–2004 and discharged within 3 days of admission	1,165
3	Clients admitted in 2003–2004 and not discharged by May 2004	2,505
4	Clients admitted in 2002–2003 and discharged in 2003–2004	2,029
5	**Net total** **Complete admission/discharge assessments included in 2003–2004 report**	**26,800**

Note: The Net Total in row 5 is obtained by subtracting the number in the second and third row from the number in the first row and then adding the number in the fourth row.

Unit Non-Response

Last year's NRS report presented a discussion on *item* non-response in the NRS. This report will focus on *unit* non-response. *Unit* non-response differs from *item* non-response in that *item* non-response deals with individual data elements missing from assessments submitted, while *unit* non-response deals with the number of entire assessments that are missing from the database.

"Unit" in the NRS may be defined as either a participating facility or an individual client assessment that is submitted to the NRS. Using these definitions, unit non-response can be evaluated either by identifying the number of facilities that did not submit data for the 2003–2004 reporting period, or by identifying the number of individual assessments missing for the same reporting period.

For the NRS, individual facilities that are licensed and are actively submitting data are referred to as being in the NRS frame. This frame is updated regularly to reflect changes in the number of submitting facilities by tracking the addition of new facilities, facility mergers, splits and/or closures. Assessing the unit non-response in a fiscal year for the NRS involves calculating the proportion of facilities that were in the frame but did not submit data for the fiscal year. CIHI monitors the facility non-response rates on a quarterly basis and communicates with facilities that have not submitted data in order to minimize this impact. In the NRS, the unit non-response rate is inferred through calculating the *response rate*:

$$\frac{\text{Number of facilities that submitted data}}{\text{Number of facilities in the } \textit{frame}} * 100$$

Facility Response Rate for Fiscal Year 2003–2004 by Quarters

2003–2004 Fiscal Year by Quarters	Q1	Q2	Q3	Q4
Number of *Submitting* Facilities	79	76	78	77
Number of Facilities in the *Frame*	81	81	81	81
Unit Response Rate	97.5%	93.8%	96.3%	95.1%

Estimating unit non-response in terms of the number of missing client assessments submitted is a fairly complex process that involves identifying the approximate number of assessments that are expected for submission by a facility during the reporting period. CIHI does not currently have a process in place to estimate these numbers. However, to obtain a sense of non-response with respect to missing assessments, CIHI monitors the number of assessments received from individual facilities every quarter to identify significant variations in numbers of assessments received from previous quarters. Facilities with a sudden and sharp increase or decrease in number of assessments submitted are contacted to assess the potential reasons for the variation. CIHI tracks the overall number of assessments submitted each quarter to monitor changes as part of the commitment to data quality. Below is a table that shows quarterly NRS submission trends from Quarter 3 2002–2003 to Quarter 4 2003–2004.

Number of Assessments Received for the National Rehabilitation Reporting System From 2002–2003 to 2003–2004 by Quarters

	Q3 2002–2003	Q4 2002–2003	Q1 2003–2004	Q2 2003–2004	Q3 2003–2004	Q4 2003–2004
Number of Admission Assessments	7,220	7,038	6,808	7,160	7,503	6,970
% Change Between Quarters	-2.52	3.27	5.17	4.79	-7.10	
Number of Discharge Assessments	6,171	6,370	6,267	6,288	7,367	6,878
% Change Between Quarters	3.22	-1.62	0.34	17.16	-6.64	

Although the change in the number of admissions between quarters from 2002–2003 to 2003–2004 is relatively steady, there is a dramatic change in the number of discharges between Quarter 2 and Quarter 3 of 2003–2004 (17% increase). This may be attributed in part to the fact that the number of discharges had been consistently less than the number of admissions in each quarter leading up to Quarter 3.

Data Processing Edits

Editing is the process of identifying missing or incorrect data while imputation is the process of correcting for the missing or incorrect data. To the extent possible, validity of the data collected is ensured in the process.

Validity checks are performed on each variable in the NRS in at least two stages: during data collection using logical and consistent validation edits in the data collection software; and during data processing using the validation edits in the NRS database at CIHI. Specifications for the CIHI NRS data collection software and licensed software vendor products are designed to prevent to the extent possible the saving of invalid or incomplete data. For example, when coding the "Living Arrangements" data element (individual(s) with whom a client is living), the edits do not allow "Living Alone" to be coded with "Living With Spouse/Partner" for the same client. Data that have an incorrect format, or are invalid according to the NRS specifications are not accepted into the database. The element level edit specifications are examined continuously for consistency and logic. Modifications are made annually at a minimum if inconsistencies are noted.

CIHI does not automatically perform imputation on missing or erroneous data. A submission report listing any errors is generated for each file processed and is electronically available on a secure Web site for viewing by the submitting facility. Submission reports contain the following information for each error that enables the facilities to identify the reason for rejecting the data: type of assessment; chart number; health card number; admission date; data element number; data element name; submitted value; error number; and error message. Facilities receive the error reports and are responsible for modifying the invalid data and re-submitting them to CIHI. Assessments considered "incomplete" or containing erroneous data are not included in the database and consequently are not used to calculate indicators for the comparative reports that are disseminated quarterly to participating facilities.

Currency of Data at the Time of Release

This characteristic assesses how current, or up-to-date, the NRS data are at the time of release of the quarterly comparative reports as well as the annual reports. Data currency is the key component of timeliness and is measured by taking the difference between the date of release and the date to which the data relate. Currency assesses whether this difference is short enough so that the data remain relevant for the type of report being issued. Also pertinent to data currency is whether the methods for processing and posting the data are as efficient as possible.

At CIHI, the quarterly comparative reports are made available to facilities eight to nine weeks following the end of each reference period, or quarter. This period takes into account the four-week period after the end of the quarter when facilities submit completed assessments for that quarter, the two-week period allotted for error correction and re-submission, and finally the two-week period required to complete the indicator calculation at CIHI and post the electronic reports. The table below provides a specific example of this timeline for any fiscal year. The timeline is considered sufficiently brief so as to ensure the currency of the data in the comparative reports.

Sample National Rehabilitation Reporting System Quarterly Submission Timeline

Quarter	Reporting Period	Submission Deadline	Error Correction Deadline	Reports Sent to Facilities
Quarter 1	April 1–June 30	July 31	August 15	August 31

For the foreseeable future, it is expected that the annual report will be available each spring, and will reflect data received from the preceding fiscal year. This report, published in Spring 2005, contains data from the 2003–2004 fiscal year, the last submission for which was received in May 2004. This timeframe is considered appropriate according to the NRS data quality specifications at CIHI.

Tables and Statistics for This Report

For readers who would like to access the aggregate data used to produce the charts and graphs presented in the report, source tables are available on the CIHI Web site at www.cihi.ca under "Quick Stats". These tables can be found under "Rehabilitation" when searching *by topic* or under "National Rehabilitation Reporting System (NRS)" when searching *by source*. All the tables are numbered. Throughout this report, references to the relevant Quick Stats tables can be found at the end of each paragraph or section. For a complete list of tables in this report, refer to Appendix D.

Data Suppression

This report adheres to CIHI's policies governing the publication and release of health information, developed to safeguard the privacy and confidentiality of data entrusted to CIHI. In compliance with these guidelines, cell counts between one and four within data tables were combined with other cells where appropriate. If such aggregation was inappropriate or infeasible then the counts and related statistics were suppressed entirely. In certain circumstances, some cells with counts greater than five were also suppressed. This was done wherever it is possible to determine the suppressed value through subtraction from other cells. In these cases, for each row and column containing a suppressed count of one to four, there is at least one additional suppressed cell.

The intent of cell suppression is to ensure anonymity and avoid disclosure of personal and identifiable information. In certain circumstances, the number of clients with missing information or who were coded as "Unknown", or "Not Available" is between one and four. These were not necessarily suppressed, as there is minimal risk of disclosure.

Computations

Statistics within this report are generally presented as whole numbers. Percentages in the web-based tables are presented to one decimal place. As a result of rounding, percentages may add to between 99% and 101%. The report also presents mean values of certain characteristics at admission, discharge and the mean change between admission and discharge. Again, due to rounding, the difference between the mean admission and discharge values and the mean change presented may range from -1 to +1.

This report uses two statistical measures to describe a distribution's centre point: the median and the (arithmetic) mean. The median is the point in a distribution that splits the distribution into two equal parts: half of the values lie below this point and half lie above it. The mean, or average, is calculated by summing all the values of the distribution and dividing that sum by the number of values presented. A mean can be affected by extreme values; therefore, for highly skewed distributions, the median is usually used, as it is less affected by such values. Throughout the report, the arithmetic mean is referred to as the "average" and median is referred to as itself.

Chapter 2. Characteristics of Inpatient Rehabilitation Clients

This chapter provides information on all clients who received inpatient rehabilitation services at facilities participating in the National Rehabilitation Reporting System (NRS) in the 2003–2004 reporting period. All of the information is drawn from data in the NRS. As of the 2003–2004 fiscal year submission deadline (May 2004), 79 facilities from Newfoundland and Labrador, Nova Scotia, Ontario, Saskatchewan, Alberta and British Columbia had submitted data to CIHI. Approximately 89% of the data used for this report was submitted by participating NRS facilities in Ontario.

Participating facilities submit data collected when rehabilitation clients are admitted to the facility and again just prior to discharge. As mentioned in Chapter 1, the analyses throughout this report are based on information from the 26,800 clients who were discharged from participating facilities during 2003–2004 and for whom complete admission and discharge assessments were submitted to and accepted by CIHI.

Facility Type

Facilities participating in the NRS are classified as either "General" or "Specialty". This classification is specific to the NRS and is intended to facilitate comparative reporting; it is not necessarily consistent with facility classification methods used in various provinces or regions. According to the NRS definition, a General rehabilitation facility is a rehabilitation unit or collection of beds designated for rehabilitation purposes that is part of a general hospital offering multiple levels or types of care. A Specialty rehabilitation facility is one that provides more extensive and specialized inpatient rehabilitation services and is commonly a freestanding facility or a specialized unit within a hospital. The rehabilitation team at the facility decides which profile most closely represents their rehabilitation program(s) and categorizes the facility as General or Specialty when beginning submissions to the NRS. The table below shows that 70% of facilities that submitted data to the NRS in 2003–2004 were General facilities, and the remaining 30% were Specialty facilities. About two-thirds (64%) of all clients were admitted to General rehabilitation facilities in 2003–2004 and a third were admitted to Specialty rehabilitation facilities.

	General Facilities		Specialty Facilities		All Facilities	
Facilities Submitting to NRS in 2003–2004	55	69.6%	24	30.4%	79	100.0%
Clients*	17,260	64.4%	9,540	35.6%	26,800	100.0%

*Refers to clients discharged in 2003–2004 with completed admission and discharge assessments.

Admission Class

Figure 2.1 shows that 86% of clients discharged from inpatient rehabilitation programs during 2003–2004 were classified as *initial rehabilitation* clients, which means this was their first inpatient rehabilitation stay in any hospital for their particular health condition. Ten percent of clients met requirements for a *short stay* classification—an admission lasting between 4 and 10 days. Three percent of clients were classified as *readmissions*—indicating that they received rehabilitation services relating to a condition for which they had previously received inpatient rehabilitation. The remaining one percent of clients were transferred directly to a rehabilitation facility from another inpatient rehabilitation unit or program for ongoing treatment of the existing illness or injury, referred to as *continuing rehabilitation*.

Figure 2.1 also shows that General facilities have a slightly lower proportion of initial rehabilitation clients: 83% in General facilities compared with 90% in Specialty facilities. The majority of clients categorized as short stay were admitted to General facilities, accounting for over 15% of all admissions to General facilities. By contrast, the majority of clients classified as readmission or continuing rehabilitation were admitted to Specialty facilities, and together they accounted for 8% of all admissions to these facilities. *(Quick Stats, Table 1)*

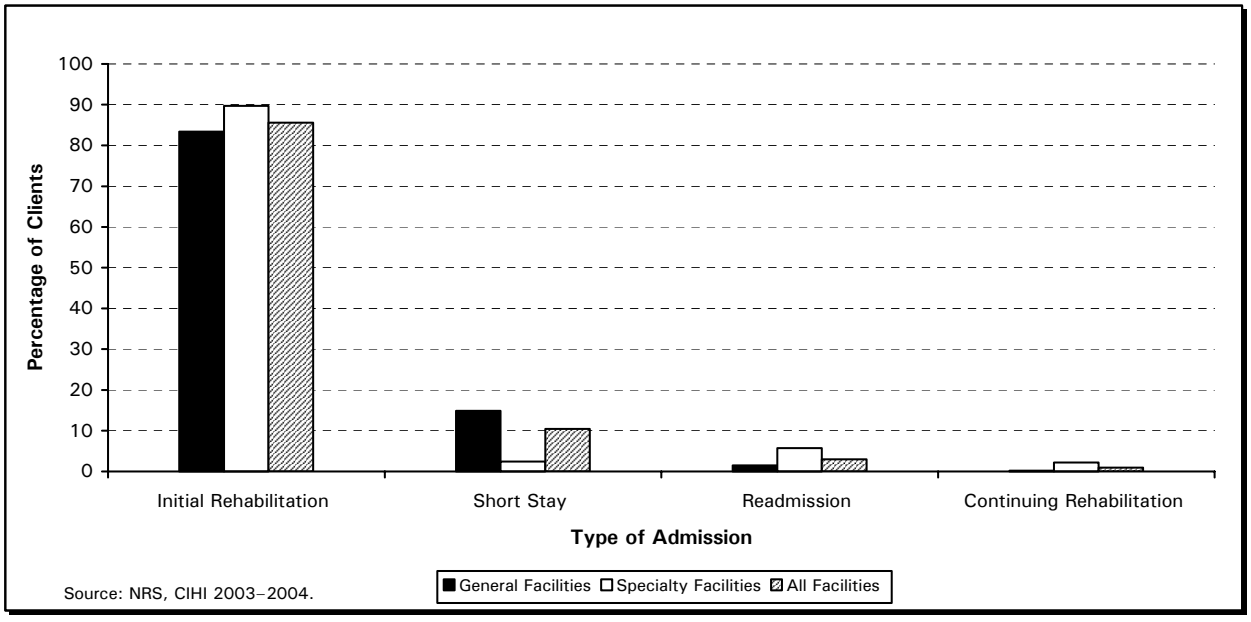

Figure 2.1 Type of Admission to Inpatient Rehabilitation by Type of Facility, 2003–2004

Source of Referral to Rehabilitation

The referral source in the NRS is the facility, agency or individual that initiated the referral of the client for admission to rehabilitation. Nine out of every ten clients (92%) admitted to inpatient rehabilitation units were referred by inpatient acute care units, either in the same facility (48%) or from a different facility (44%). Clients referred by a private healthcare practitioner (such as a family doctor or physiotherapist) accounted for only 3% of admitted rehabilitation clients, while those referred from facility-based ambulatory care services (e.g. dialysis clinics or geriatric day programs) accounted for 2% of all clients. The remaining 4% of clients were referred by a variety of different sources including: rehabilitation units in different facilities; residential care facilities (e.g. nursing homes, long-term or continuing care facilities); a family member; or the client initiated the referral themselves.

As Figure 2.2 shows, there were some differences among the referral sources of clients admitted to General and to Specialty rehabilitation facilities. Sixty-eight per cent of clients admitted to General facilities were referred from an inpatient acute unit of the same facility and 28% were referred from an inpatient acute care unit of a different facility. In contrast, only 10% of clients admitted to Specialty facilities were referred from an inpatient acute unit within the same facility and 74% were referred from inpatient acute care at a different facility. This is consistent with the definition of a Specialty facility as commonly being a freestanding building with a focus on rehabilitation services rather than acute care services, and therefore receiving the majority of their clients from other facilities. *(Quick Stats, Table 2)*

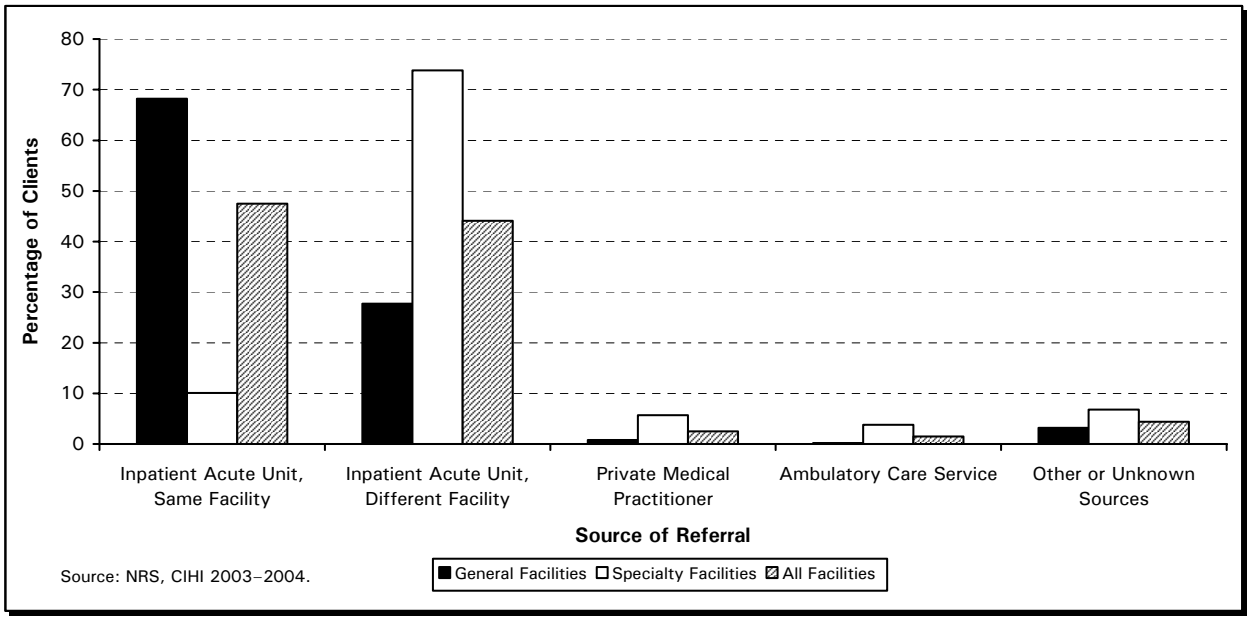

Figure 2.2 Source of Referral to Inpatient Rehabilitation by Type of Facility, 2003–2004

The NRS data also suggest that of the clients referred by a facility-based ambulatory clinic, most (92%) were admitted to Specialty rehabilitation facilities, while 68% of clients who initiated their own referral to inpatient rehabilitation or had family members who initiated the referral were admitted to General facilities.

Days Waiting for Admission

This indicator refers to the number of days from the date a client is deemed ready for inpatient rehabilitation to the date they were actually admitted. The date ready for admission is the date that the client was clinically ready to start a rehabilitation program and met the criteria for admission to the rehabilitation facility. It does not refer to the date the client was put on a waiting list if this was done prior to when the client was clinically ready for rehabilitation. The date ready for admission is determined either by the rehabilitation program accepting the client or by the referring facility, depending on the admission process at a particular facility.

The NRS makes an allowance for the fact that the date ready for admission to rehabilitation is not always easily ascertained. Where this is the case, facilities may indicate on the admission assessment that the date ready for admission was not known. During 2003–2004, the date ready for admission was not known for one fifth (20%) of clients who were discharged during the fiscal year. This percentage has decreased from the 23% that was reported in the 2002–2003 annual report. Episodes where the date ready for admission was not known are not included in the calculation of days waiting for admission presented here, so some degree of care should be taken when interpreting this section. Percentages given in the following paragraphs are based on the 21,375 episodes where the date ready for admission was known (80% of 26,800 episodes received).

Figure 2.3 shows that 52% of the clients for whom a date ready for admission was available were admitted to inpatient rehabilitation the same day they were deemed clinically ready and a further 16% waited only one day. Ten per cent of clients waited over a week before they were admitted and 2% waited over 30 days. *(Quick Stats, Table 3)*

Figure 2.3 also compares the days waiting for admission to inpatient rehabilitation by facility type. As the figure shows, a larger proportion of clients admitted to General facilities appear to have been admitted for rehabilitation on the same day they were deemed ready: 60% of clients admitted to General facilities compared with 39% admitted to Specialty facilities. This appears to be consistent with the finding that the majority of clients admitted to General facilities are referred by the inpatient acute unit of that same facility, whereas Specialty facilities often receive their clients from another facility. The admission process in Specialty facilities may often necessitate a more detailed application for rehabilitation and an inter-facility transfer—processes that might contribute to the difference. *(Quick Stats, Table 3)*

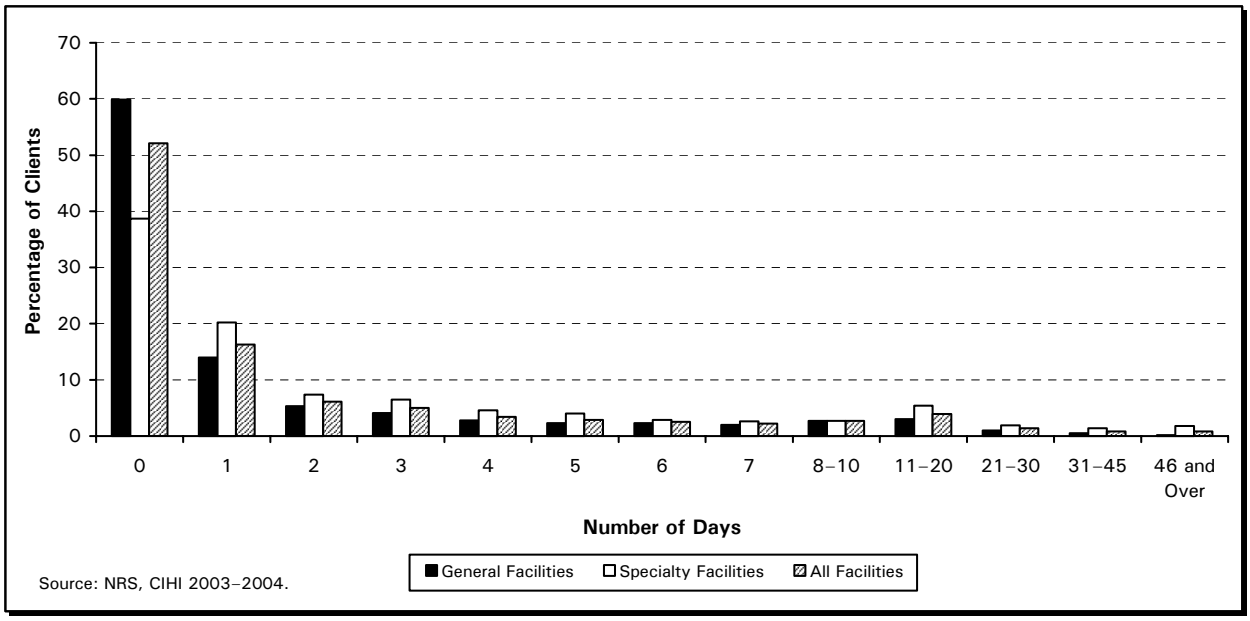

Figure 2.3 Distribution of Days Waiting for Admission to Inpatient Rehabilitation by Type of Facility, 2003–2004

The median number of days that clients with a known date ready for admission had to wait for admission to the rehabilitation facility was zero days (i.e. half of the clients were admitted on the same day as they were deemed ready for admission). The median rather than the mean is used in this report to describe the days waiting for admission, as the distribution is skewed with a majority of clients waiting less than a week for admission to a rehabilitation facility.[3]

Figure 2.4 shows the median number of days clients waited for admission by the referral source. The figure shows that clients referred to rehabilitation by an acute inpatient unit of the same facility (46% of all clients) or by a rehabilitation unit of the same facility (less than 0.5% of all clients) had a median wait of zero days. In other words, at least half of these clients were admitted to the rehabilitation unit or program from these sources on the same day they were deemed ready for admission.

[3] Refer to the "Computations" section in Chapter 1 for more details on the calculation of median and mean.

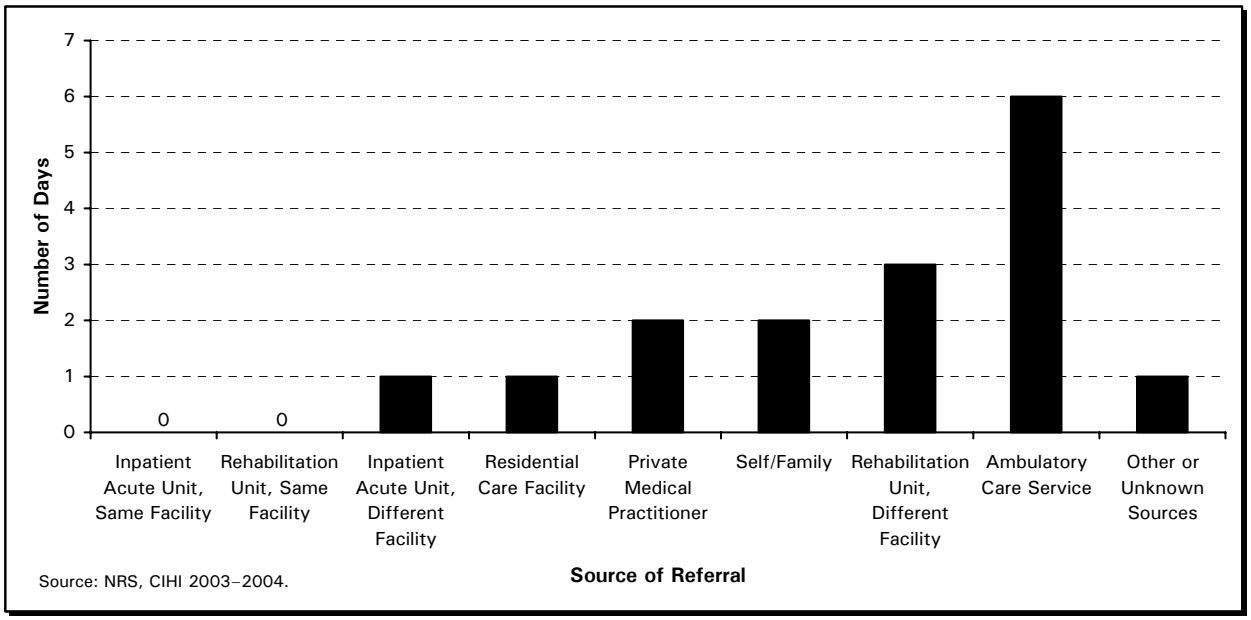

Figure 2.4 Median Days Waiting for Admission to Inpatient Rehabilitation by Source of Referral, 2003–2004

Clients referred from an inpatient acute care unit of a different facility (46% of all clients) or a residential care facility (just over 1% of all clients) had a median wait of one day before they were admitted. The remaining referral sources had longer median wait times: self/family—2 days; private medical practitioner—2 days; rehabilitation units in different facilities—3 days; and ambulatory care services—6 days. However, these remaining referral sources accounted for just 6% of all NRS client episodes for 2003–2004. *(Quick Stats, Table 4)*

While many clients in the NRS appear to be waiting for less than a week for admission to rehabilitation, Chapter 3 will show that some client groups wait longer than others, on average, for admission to a rehabilitation bed. Implications for delays in admission to rehabilitation can have many facets: for example, they may be financial, in cases where the client is occupying a more expensive bed, or sociological, where the client is not coping well in the community and is relying heavily on family support while awaiting admission. While the data suggest that there is some variation in wait times, further investigation is required to shed light on the reasons behind these differences.

Demographic Characteristics

Figure 2.5 shows that a majority (72%) of all clients admitted for inpatient rehabilitation in 2003–2004 were aged 65 years and over. A quarter (25%) of clients were aged between 65 and 74 years, a further third (34%) were aged between 75 and 84 years, while 14% of clients were 85 years of age and over. The average age of inpatient rehabilitation clients was 70 years.

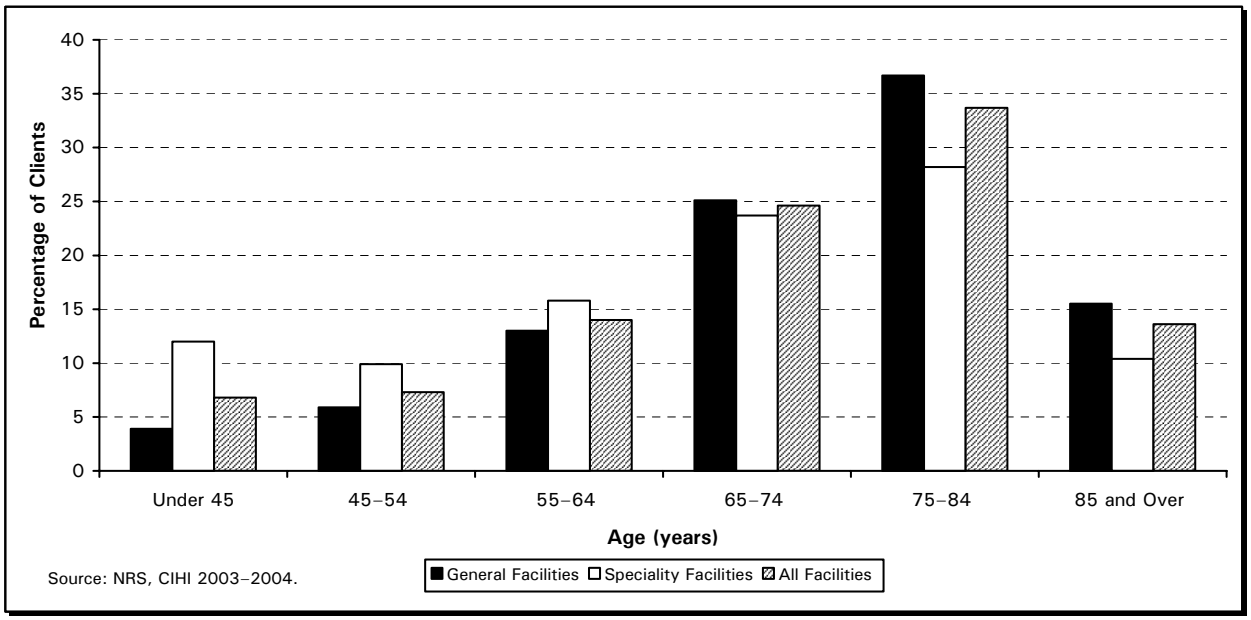

Figure 2.5 Age at Admission of Inpatient Rehabilitation Clients by Type of Facility, 2003–2004

The data suggest that clients who were admitted to General facilities tended to be older than those admitted to Specialty facilities. The average age of clients admitted to General facilities in 2003–2004 was 73 years compared with 66 years for those admitted to Specialty facilities. Over three-quarters (77%) of the clients admitted to General rehabilitation facilities were aged 65 years and over compared with 62% admitted to Specialty rehabilitation facilities. Chapter 3 will show that clients in the younger age groups (under the age of 45) were more frequently admitted for rehabilitation of acute traumatic conditions such as spinal cord or head injuries, rather than chronic conditions. Rehabilitation for these types of acute injuries tend to be offered more frequently in freestanding facilities that have specialized programs oriented towards this client group, which appears consistent with the lower average age for clients admitted to Specialty facilities. *(Quick Stats, Table 5)*

Figure 2.6 shows that, in general, the ratio of female to male clients increased with age. The youngest age group (those aged under 45 years) had the largest proportion of male clients and the smallest proportion of female clients (60% male to 40% female). Males and females accounted for approximately equal proportions of clients in the 45 to 54 and in the 55 to 64 age group. In contrast, only 28% of clients aged 85 years and over were male. These differences were also reflected in the average age of male and female clients in the NRS data: 67 years and 72 years, respectively. *(Quick Stats, Table 5)*

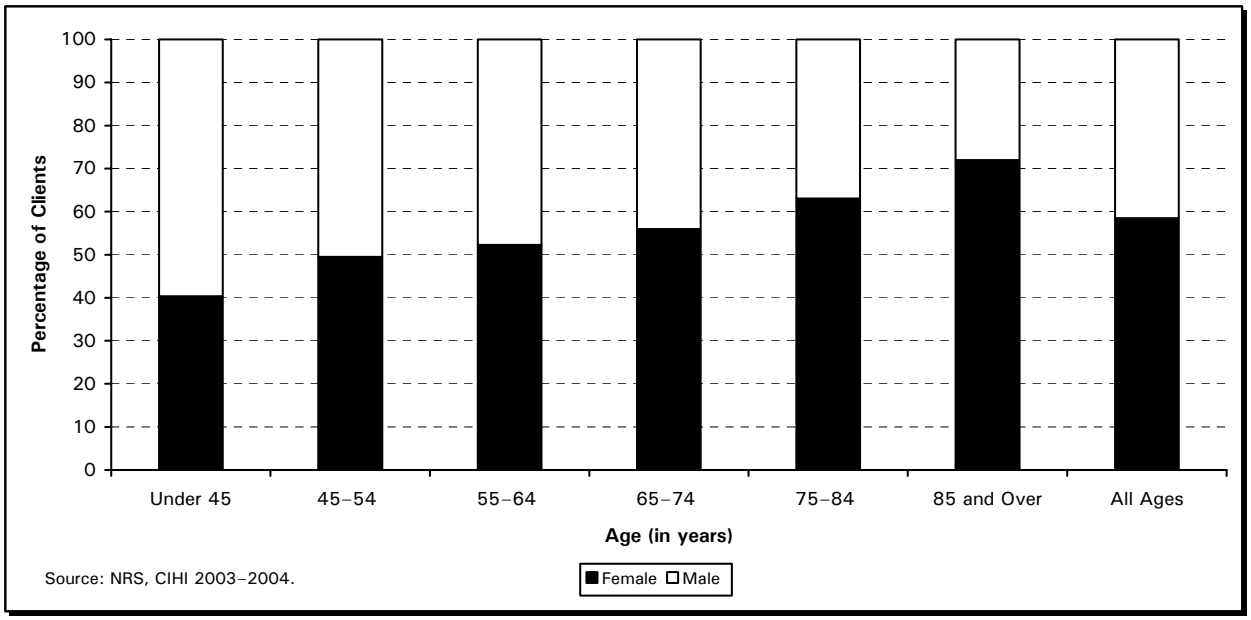

Figure 2.6 Proportion of Male and Female Inpatient Rehabilitation Clients by Age, 2003–2004

As with age, the distribution of sexes varied between General and Specialty facilities (figure not shown). In General facilities 61% of clients were female and 39% were males, while in Specialty facilities, the proportions of female and male clients were almost equal (53% and 47% respectively). *(Quick Stats, Table 5)*

Pre-Admission Living Setting

In the NRS, living setting refers to the physical environment in which the client is living, such as an apartment or a long-term care facility. At admission, information is collected on the type of living setting the client was residing in just prior to entering the health care system. On discharge, living setting information is collected based on the planned living setting destination following the rehabilitation program.

In 2003–2004, 93% of clients admitted for inpatient rehabilitation lived in a private house or apartment prior to their admission. Four percent of clients lived in assisted living accommodation, such as group or retirement homes or supervised living settings, and 2% of clients lived in residential care (for example, long-term care facilities or nursing homes). *(Quick Stats, Table 6)*

Among those clients who lived in a private house or apartment prior to their admission, 68% lived with their spouse, family or friend(s) while 31% lived alone. Sixteen per cent of clients living in a private house or apartment received some kind of paid health services prior to admission (home support services paid out of pocket or through insurance, for example). It should be noted that these services may or may not have been related to the condition for which they were admitted to inpatient rehabilitation.

Informal Support Received Prior to Admission

Many people living at home receive varying degrees of informal support to carry out their daily routines. This is the network of family members, friends and neighbours who assist the client on an unpaid basis with tasks related to their daily living that help them remain in the community. These tasks can range from simply checking in on the client to performing household tasks such as cleaning, cooking and running errands, and may have responsibilities that require a certain skill level (such as medication supervision).

The NRS includes data elements to assess whether or not informal needs exist for a client and, if so, whether they are being met entirely, partially or not at all. Note that the qualifier "entirely", "partially" or "not at all" is determined by the clinical team through interviews with the client and/or family and friends. The information is collected at admission based on care received within the seven days prior to the day of admission. It is also collected at discharge based on the expected needs and informal resources available at the time of discharge.

In 2003–2004, half (51%) of clients indicated they were receiving all of the informal support they required prior to their admission. A further 12% of clients received some of the support that was required. Three percent reported receiving no informal support at all, even though they felt there was a need. Just over a third (34%) of clients did not require any informal support, either because the clients were able to care for themselves or because they received all their required support from formal service providers. (Figure 2.7)

Information on informal support is one mechanism to capture the level of unpaid, non-professional support that exists for clients in the community. Although the NRS data provide a glimpse into the requirements for and availability of informal support for this inpatient rehabilitation population, they do not provide information on the types of support required and received, or the reasons why informal needs that may be required are not being met.

Figure 2.7 shows some variation in the amount of required informal support received according to the type of facility to which the client was admitted. A smaller proportion of clients admitted to Specialty facilities received all of the informal support required prior to admission (42% compared with 56% for those admitted to General facilities), and a larger proportion received only some of the help required (23% compared with 6% in General facilities). Future NRS analytical activities may examine in more depth the variation in population characteristics between General and Specialty facilities that may be influencing this indicator. *(Quick Stats, Table 7)*

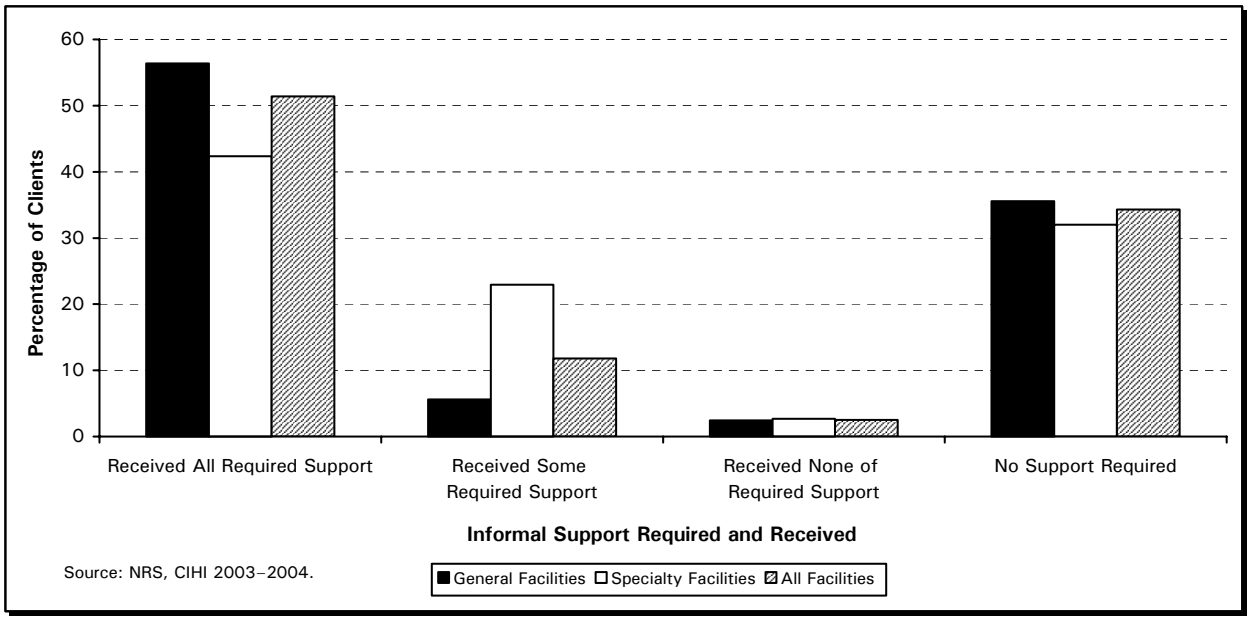

Figure 2.7 Inpatient Rehabilitation Clients Requiring and Receiving Informal Support Prior to Admission by Type of Facility, 2003–2004

Length of Stay

Length of stay for the NRS is calculated as the number of days between a client's admission to and discharge from the rehabilitation facility, excluding any service interruptions. Service interruptions are recorded when rehabilitation services are temporarily suspended due to a change in the client's health status. These interruptions are excluded from length of stay calculations in order to obtain a more accurate count of the number of days that clients were able to participate in the rehabilitation program. In 2003–2004, just 3% of clients had service interruptions at some point during their rehabilitation stay. As such, service interruptions did not appear to affect the median length of stay for NRS clients, which was 20 days including or excluding service interruptions.

Figure 2.8 shows the distribution of client length of stay in inpatient rehabilitation. As the figure shows, the largest proportion of clients (23%) stayed in inpatient rehabilitation facilities between 8 and 14 days. Sixteen percent of clients stayed under 7 days and 15% had a stay of between 15 and 21 days. The remaining columns grouped together represent 46% of all NRS clients and indicate a stay in rehabilitation of over three weeks. *(Quick Stats, Table 8)*

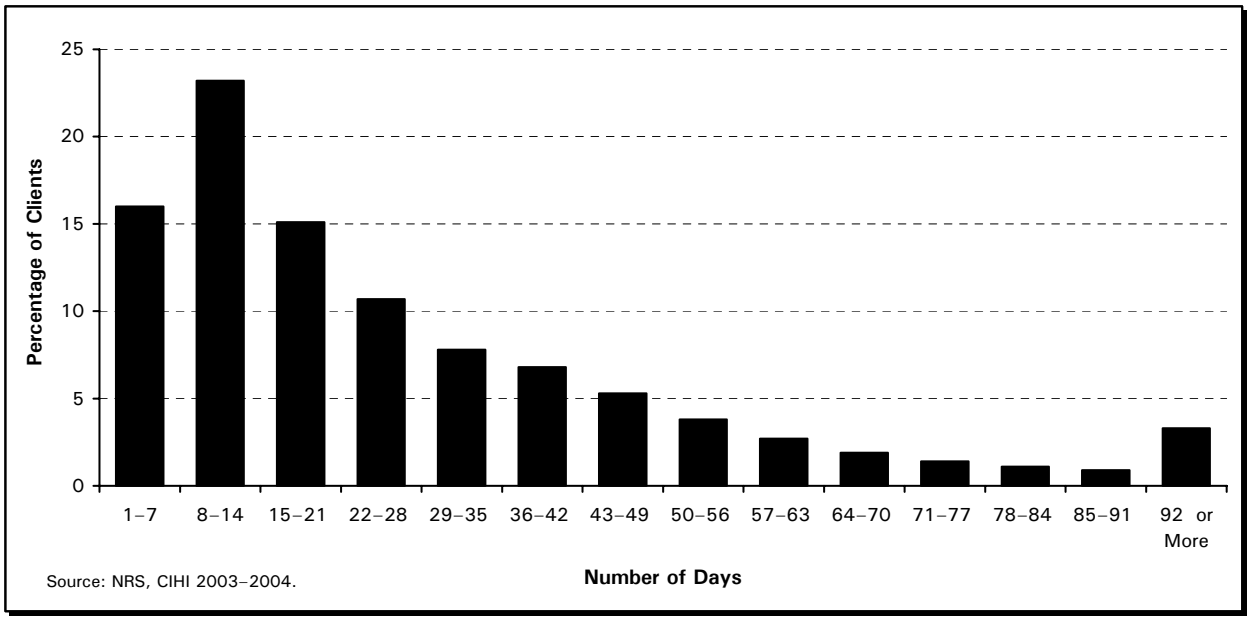

Figure 2.8 Distribution of Length of Stay in Inpatient Rehabilitation, 2003–2004

As discussed in Chapter 1, in addition to those that did not have complete NRS admission and discharge assessments, clients who had a length of stay in rehabilitation of less than three days are excluded from the analyses in this report.

In keeping with the definition of NRS admission types (seen earlier in this chapter), clients classified as short stay admissions had the shortest median length of stay (6 days), while those classified as initial rehabilitation clients had a median stay of 22 days. Clients admitted as readmissions had a median length of stay of 24 days, and continuing rehabilitation clients had the longest median length of stay at 41 days. Chapter 3 includes information on variations in length of stay between the different Rehabilitation Client Groups (RCGs).

The median length of stay for clients admitted to Specialty facilities was longer than that of clients admitted to General facilities (29 days and 15 days, respectively). The median lengths of stay for some admission types also varied according to the facility type. For example, clients classified as initial rehabilitation admissions had a median length of stay of 30 days if they were admitted to a Specialty facility, compared to 18 days for those initial rehabilitation clients admitted to a General facility. *(Quick Stats, Table 9)*

Reasons for Discharge

The NRS contains information on the reason for a client's discharge from a participating rehabilitation facility. These data provide information on whether or not a client's rehabilitation goals (determined collaboratively by the rehabilitation team and the client and documented on admission) were met or not met, and whether the client was discharged into the community or was transferred/referred to another unit or facility (either for acute care or to a transitional bed to await placement). Other reasons for discharge include the withdrawal of the client from rehabilitation services against professional advice, or the death of the client.

Nine out of every 10 clients (90%) were determined as having sufficiently met their service goals at discharge, 79% of all clients met their goals and returned to live in the community (a private house or apartment, boarding house or assisted living setting), while 11% of all clients met their goals but were referred or transferred to other units within the same facility or to other facilities. Nine percent of all clients were reported as not having met their service goals, and were either discharged to the community or transferred to another unit or facility. *(Quick Stats, Table 10)*

Achieving rehabilitation goals does not necessarily imply a return to pre-injury/illness functional status. Goals set by the rehabilitation team and the client are intended to maximize a client's functional independence under existing circumstances. It is the level of independence achieved that most often determines the appropriate type of living setting on discharge. For example, at admission, it may be clear that a client with a severe stroke will not be able to recover enough function to return to living alone, but a reasonable rehabilitation goal might include being able to get into or out of bed with the help of just one person. Whether or not the client achieves this goal may help determine which type of living setting can adequately provide for this client's needs. All clients who have sufficiently met their goals through rehabilitation are considered to have had a "successful" course of rehabilitation for the purposes of the NRS, regardless of whether or not the client has returned to their previous level of function.

Services Referred to at Discharge

Whereas the previous section described the various reasons for clients being discharged from a rehabilitation program, this section will examine the types of services or care that these clients were most often referred to upon discharge. These services include home, community, and ambulatory care services for clients discharged into the community, and residential care or inpatient care for those who remain in the health care system following a stay in rehabilitation.

During 2003–2004, over four out of five (84%) clients were referred or transferred to facilities or other agencies after discharge from rehabilitation in order to receive additional services pertaining to their rehabilitation condition. NRS data suggest that the remaining 16% of clients were either not referred or transferred to any service, or the information was not collected for other reasons, such as the client's withdrawal from the rehabilitation program.

Among those clients referred for services after discharge, 38% were referred to home care agencies, 15% were referred to facility-based ambulatory care services, and 14% were referred to a private healthcare practitioner, such as a family doctor or physiotherapist. Other clients were transferred to various types of facility-based care. For example, 8% were referred to inpatient acute care units, and 4% to other inpatient rehabilitation units. *(Quick Stats, Table 11)*

As Figure 2.9 shows, there was some variation in the services to which clients were referred upon discharge according to the type of facility from which they had been discharged. Clients discharged from General facilities were more likely to be referred to home care agencies than those discharged from Specialty facilities (45% versus 26%). The reverse was true for clients referred to ambulatory care services or private medical practitioners. Among clients discharged from Specialty facilities, one in five (20%) were referred to ambulatory care services, and similar proportion to private medical practitioners. In contrast, one in 8 clients (13%) discharged from General facilities were referred to ambulatory care service and one in 10 (10%) were referred to a private healthcare practitioner. Future NRS reports may shed some light on the impact of client mix on the referral variations between Specialty and General facility types.

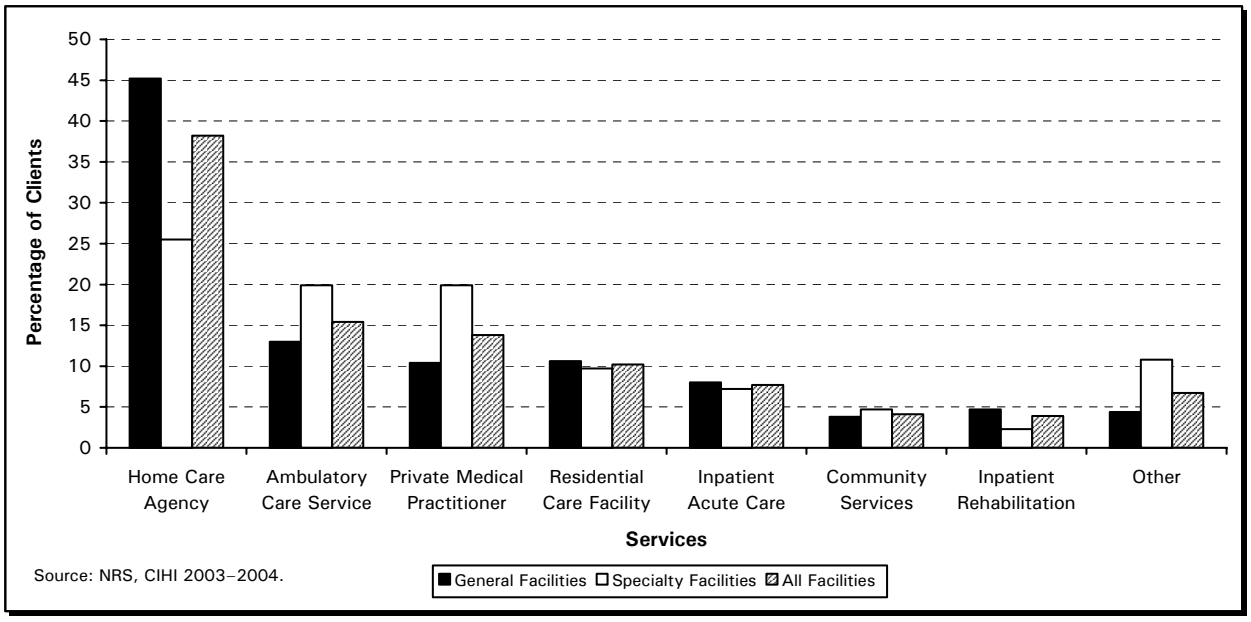

Figure 2.9 Services Referred to After Discharge From Inpatient Rehabilitation, 2003–2004

Pre-Admission and Post-Discharge Living Setting

Client living setting prior to admission into an inpatient rehabilitation facility was examined earlier in this chapter. This section of the report discusses the various types of living settings rehabilitation clients were discharged to in 2003–2004 following completion of the rehabilitation program. Often, significant resources (both human and financial) are involved in finding new living arrangements for clients unable to return to their pre-admission environment. This indicator provides information on the rates at which clients return to the community following rehabilitation or require relocation to a facility that provides care services, such as an assisted living or residential care facility.

Figure 2.10 shows the post-discharge living setting of clients classified according to their pre-admission living setting. The figure shows that most clients returned to their pre-admission living setting following discharge from the rehabilitation facility, suggesting that they were at least able to return to a baseline level of function appropriate for that setting. For example, 60% of all clients who were living in an assisted living environment prior to their entry into the health care system returned to that environment after their stay in rehabilitation, while 20% were placed in a residential care setting. Note that the "Other/Unknown" category denotes clients who had either moved into other types of accommodation or whose post-discharge living setting was not known or recorded (for example, clients who had been transferred to another hospital).

Clients who had received paid health services prior to their admission were less likely to return home on discharge, compared with those who had not received paid services. For example, 73% of clients who had received paid health services prior to admission returned to a private house or apartment (with or without paid services) upon discharge, while 15% moved into either an assisted living environment or to a residential care facility. In comparison, 84% of clients who had not received paid health services returned home, while only 8% moved into an assisted living environment or to residential care facility. *(Quick Stats, Table 12)*

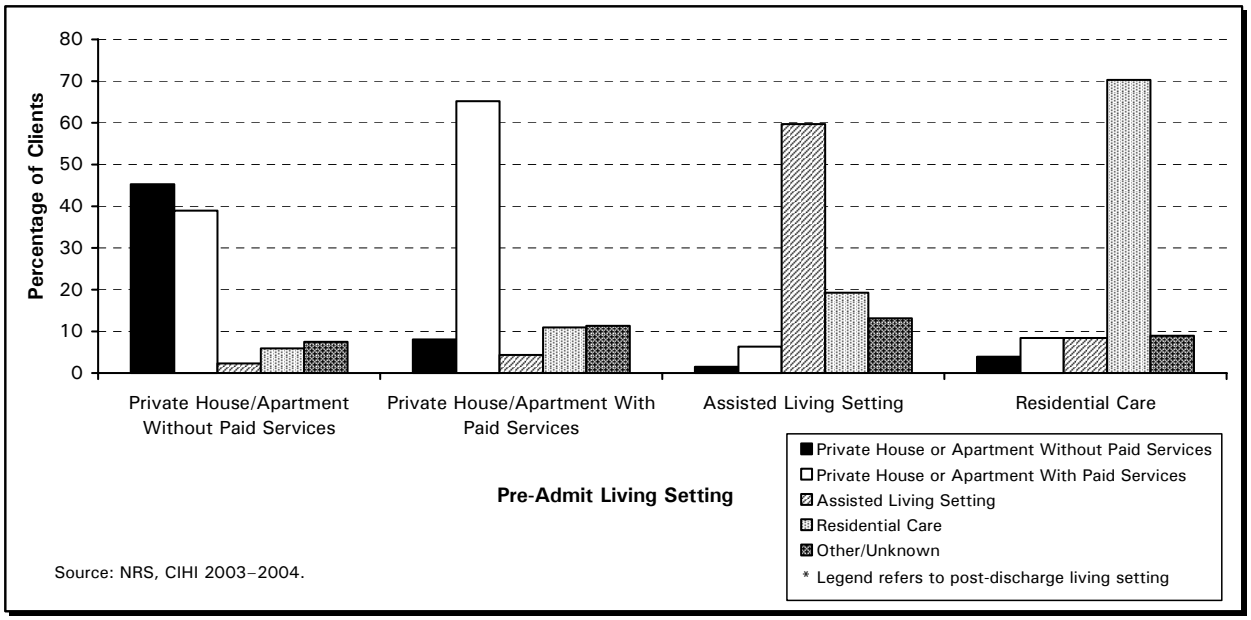

Figure 2.10 Pre-Admission and Post-Discharge Living Setting of Inpatient Rehabilitation Clients, 2003–2004

Summary

Full admission and discharge assessments for 26,800 clients discharged from inpatient rehabilitation facilities in 2003–2004 were submitted to the NRS. This chapter has highlighted several characteristics of the clients, facilities and rehabilitation episodes that are reflected in the NRS data. Some noteworthy differences across facility types, demographic characteristics and referral patterns were presented in order to provide a broad summary of the inpatient rehabilitation services in participating facilities across Canada.

What We Know

- In 2003–2004, the average age of inpatient rehabilitation clients was 70 years.
- The ratio of female to male clients increased with age.
- Over nine out of every ten clients were referred for inpatient rehabilitation services from acute care facilities.
- Among clients for whom a date ready for admission was known, 52% were admitted to inpatient rehabilitation the same day they were deemed clinically ready to participate in rehabilitation. Just two percent of clients had to wait over 30 days for admission.
- Sixty-six percent of clients reported requiring some level of informal support to manage their activities of daily living prior to admission for rehabilitation services.

- The majority of clients were referred for some type of service through a facility or agency following their discharge from rehabilitation. Nearly 60% of clients were referred to home care agencies and 20% were referred to ambulatory care services.

What We Don't Know

- The reasons for the variations between the dates ready for admission and the date clients were admitted to rehabilitation. These reasons vary by facility and may be related to factors such as admission process, staffing, bed availability and client mix.

- The specific nature and extent of post-rehabilitation services to which clients are referred, as well as the availability of these services. More information in this area would assist with planning across the continuum of care as clients are discharged from facility-based care.

Chapter 3. Rehabilitation Client Groups

Clients are admitted to rehabilitation programs to improve functional levels that may have declined due to injury or illness, or following surgery. Health conditions, such as stroke, arthritis, spinal cord injury, etc. that result in the need for rehabilitation can vary significantly in terms of health resource requirements and rehabilitation approach. Grouping clients according to specific conditions and comparing the data within and across these groups provides information towards understanding variations in rehabilitation service provision and client outcomes.

Within the National Rehabilitation Reporting System (NRS), a client is categorized into one of 17 health condition groups, known as Rehabilitation Client Groups (RCGs). The RCG selected for a particular client is based on the condition that best describes the primary reason for the client's admission to the inpatient rehabilitation unit or facility—for example, stroke or limb amputation. Some RCGs are further sub-divided in order to facilitate more specific analysis of groups that contain large numbers of rehabilitation clients. The limb amputation RCG, for example, is further subdivided into groups that denote which limb was amputated and at what level the amputation occurred. A list of RCGs used in the report can be found in Appendix B. For the purposes of this report, only the 17 main groups and selected sub-divisions of RCGs are discussed. RCGs are generally arranged in descending order of volume of clients for most of the figures/charts and tables used for this report. Where the term "Other RCGs" appears in a figure or table, two or more RCGs have been grouped together due to small number of individuals in that group.

Overall Distribution of Rehabilitation Client Groups

Two RCGs, orthopaedic conditions and stroke, accounted for two-thirds (66%) of all inpatient rehabilitation clients discharged from participating NRS facilities in 2003–2004. Figure 3.1 shows that almost half of the clients (49%) received rehabilitation relating to orthopaedic conditions, such as hip fracture, hip replacement or knee replacement, while nearly a fifth of all clients (17%) received rehabilitation services following a stroke.

The remaining RCGs contained considerably smaller proportion of clients: medically complex conditions—7% of all clients; brain dysfunction—4%; debility—4%; and limb amputation—4%. A further 3% of clients received rehabilitation services following spinal cord dysfunction, which includes non-traumatic or traumatic paraplegia and quadriplegia, as well as other spinal cord injuries. The remaining 12% of clients received inpatient rehabilitation for other conditions such as arthritis, cardiac disease, major multiple trauma, pain syndromes, and pulmonary disease. *(Quick Stats, Table 13)*

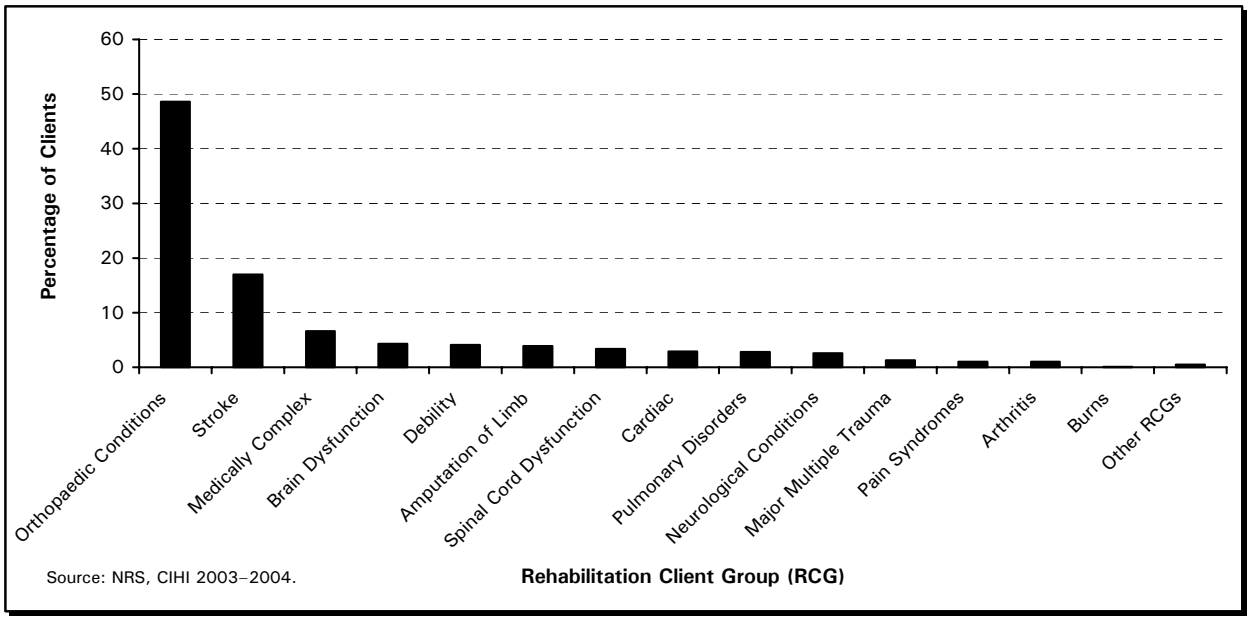

Figure 3.1 Distribution of Inpatient Rehabilitation Clients by Rehabilitation Client Group, 2003–2004

Rehabilitation Client Group by Type of Facility

Although orthopaedic and stroke clients were by far the two largest groups in both General and Specialty rehabilitation facilities during 2003–2004, there were some differences in the distribution of clients across RCGs within the General and Specialty facility types.

General facilities had a relatively higher proportion of admissions for orthopaedic, medically complex and debility clients. For example, 54% of clients admitted to General facilities received services for orthopaedic conditions compared to 40% of clients admitted to Specialty facilities. Conversely, Specialty facilities had a relatively higher proportion of admissions for brain dysfunction, spinal cord dysfunction, and limb amputations. For example, spinal cord dysfunction admissions accounted for only 1% of all admissions to General facilities, compared to 7% of all admissions to Specialty facilities. General and Specialty facilities had similar proportion of clients admitted for inpatient rehabilitation following a stroke (17%). *(Quick Stats, Table 13)*

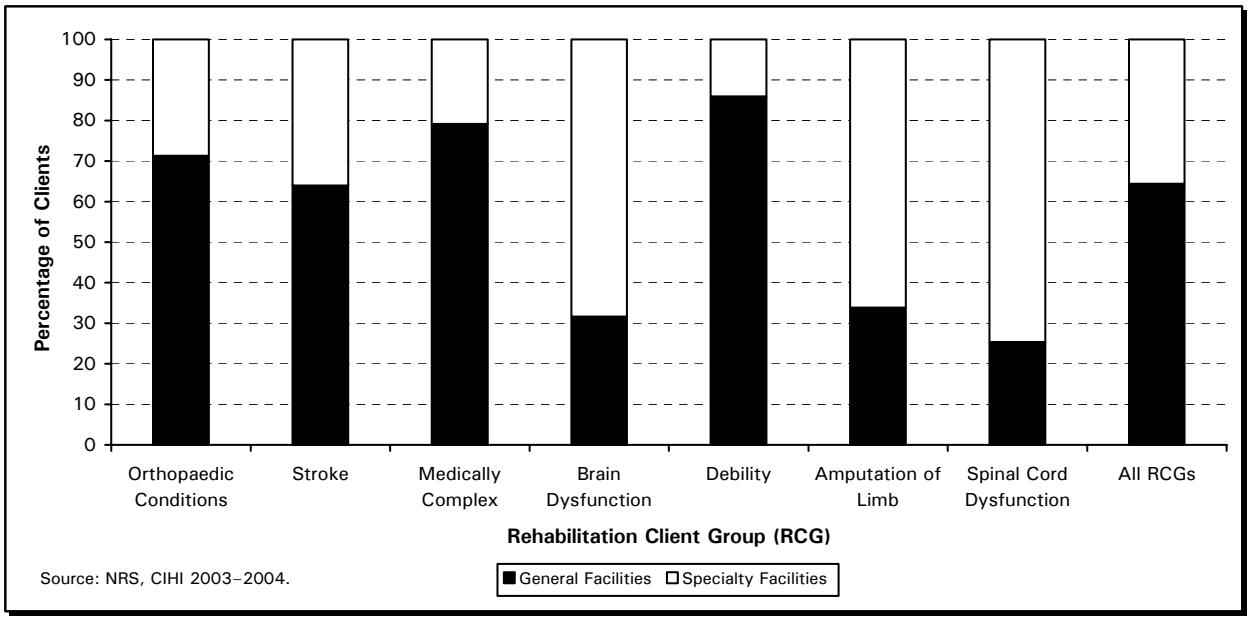

Figure 3.2 Distribution of Inpatient Rehabilitation Clients by Type of Facility and Rehabilitation Client Group, 2003–2004

Figure 3.2 is a graphical representation of the proportion of RCG admissions by facility type. The orthopaedic, stroke, debility and medically complex RCGs accounted for a significant proportion of clients admitted to General facilities. For example, 71% of clients in the orthopaedic RCG were admitted to General facilities while only 29% went to Specialty facilities. These data relating to orthopaedic clients, who tend to be older, are consistent with the demographic data from Chapter 2 that showed older NRS clients (aged 75 years and over) were admitted more frequently to General facilities. Data in subsequent sections of this chapter will show that older clients were more typically admitted to rehabilitation for conditions relating to the orthopaedic, stroke, debility and medically complex RCGs. Brain dysfunction, amputation of limb and spinal cord dysfunction RCGs—conditions seen more frequently in younger clients—accounted for larger proportions of clients admitted to Specialty facilities. For example, three quarters (75%) of all spinal cord dysfunction clients were admitted to Specialty facilities compared to only a quarter (25%) who were admitted to General facilities. *(Quick Stats, Table 14)*

Days Waiting for Admission

As mentioned in the previous chapter, the date ready for admission was not known for a fifth (20%) of clients discharged in 2003–2004. These clients were therefore not included in the following analysis and this should be considered when interpreting the results on the days waiting for admission data presented in subsequent pages.

Overall, clients in the NRS for whom a date ready for admission was known had a median wait of zero days for admission to inpatient rehabilitation. As Figure 3.3 shows, orthopaedic, medically complex, and pulmonary clients had the shortest median wait of zero days (i.e. half of these clients were admitted the same day they were deemed eligible), while the median wait time for stroke, brain dysfunction and spinal cord dysfunction clients was one day. Clients with limb amputations and burns tended to wait the longest for admission to a rehabilitation facility with a median wait of two days. As discussed in Chapter 2, median is used as a measure rather than mean, due to the wide range of values reported for days waiting for admission. *(Quick Stats, Table 15)*

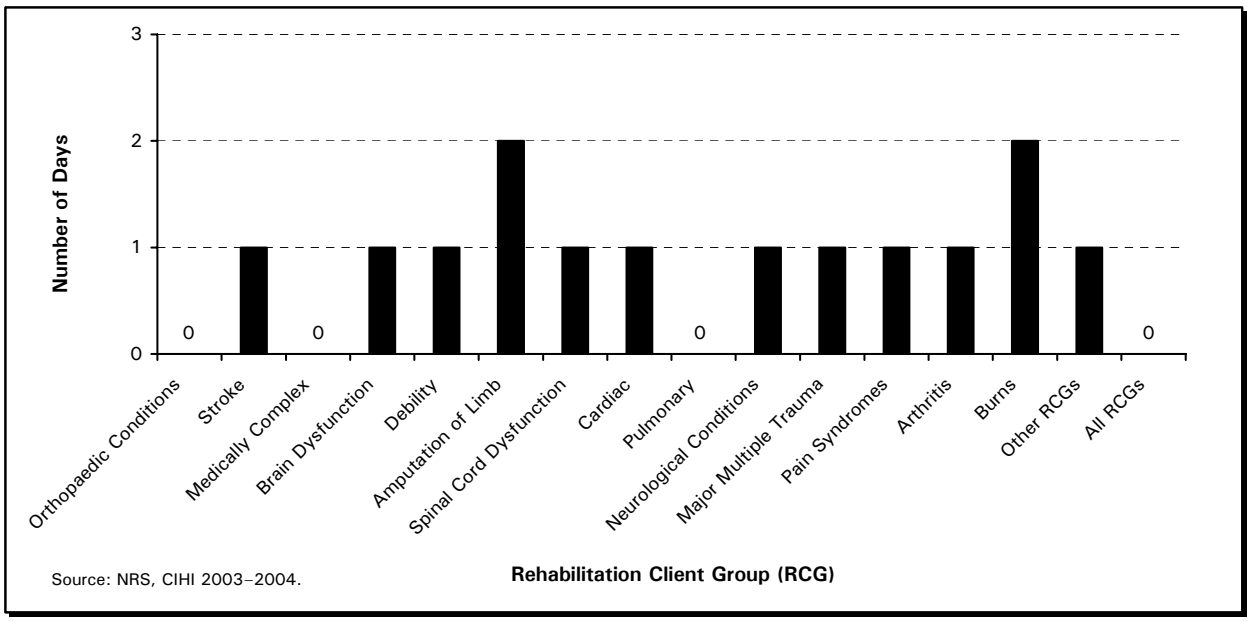

Figure 3.3 Median Days Waiting for Admission to Inpatient Rehabilitation by Rehabilitation Client Group, 2003–2004

Demographic Characteristics

Chapter 2 described the age and sex distributions of clients who received inpatient rehabilitation from participating NRS facilities in 2003–2004. In this chapter, the age and sex characteristics are presented for clients within the seven most frequently occurring RCGs: orthopaedic conditions, stroke, medically complex conditions, brain dysfunction, debility, amputation of limb, and spinal cord dysfunction. Clients in these RCGs together formed 88% of all episodes in the NRS for 2003–2004.

Figure 3.4 shows that the orthopaedic RCG had the highest proportion of female clients in 2003–2004: 69% of females compared with 31% of males. The debility RCG had the next highest proportion of female clients: 61% compared with 39% of males. The medically complex and stroke RCGs had more equal proportions of female and male clients. The stroke RCG had a proportion of 46% female clients and 54% male clients while the comparative figures for the medically complex RCG were 54% and 46%, respectively. In contrast, amputation of limb, brain dysfunction, and spinal cord dysfunction clients were more likely to be male: the proportion of male clients in these RCGs ranged from 61% to 68%. *(Quick Stats, Table 16)*

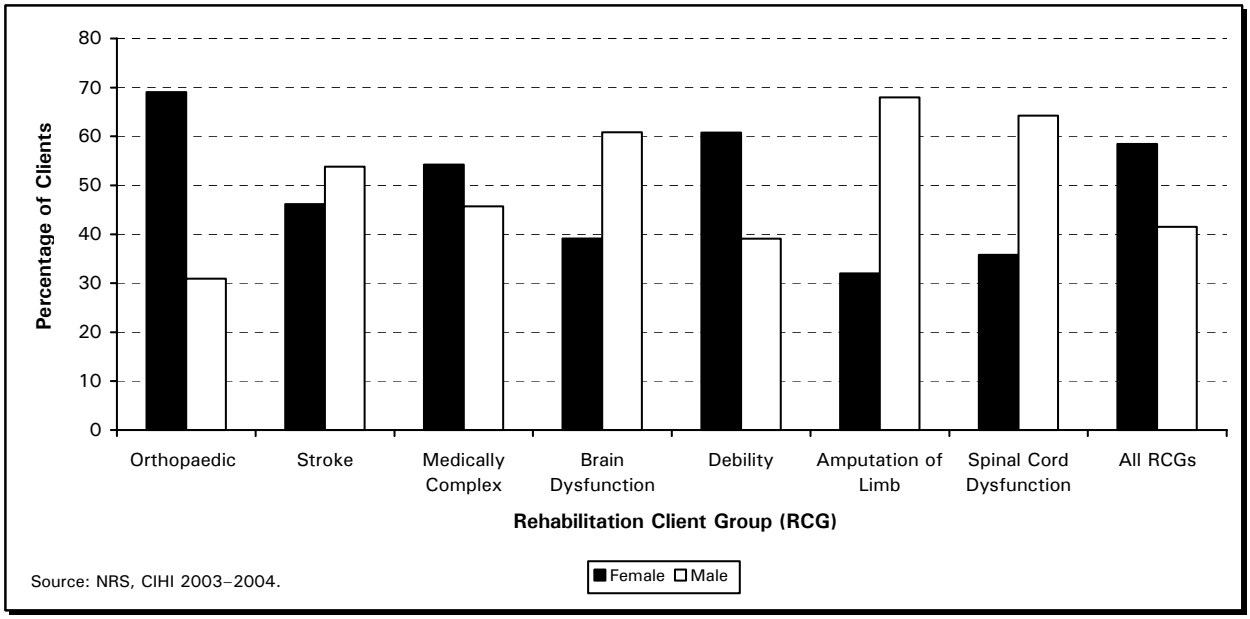

Figure 3.4 Sex of Inpatient Rehabilitation Clients by Rehabilitation Client Group, 2003–2004

Although the orthopaedic, stroke, debility and medically complex RCGs show variations by sex, Figure 3.5 demonstrates some similarities in the age distributions for these groups. Each of these groups has a large proportion of clients aged 75 years and over, but he debility RCG has the highest proportion at 65%. Clients coded under the debility RCG are usually admitted to rehabilitation following a general loss of function with no single distinct acute medical issue or causative factor. These clients, as a rule, also tend to be older. Consistent with the demographics previously discussed, the largest representation of the debility group comes from female clients who are aged 75 years and over.

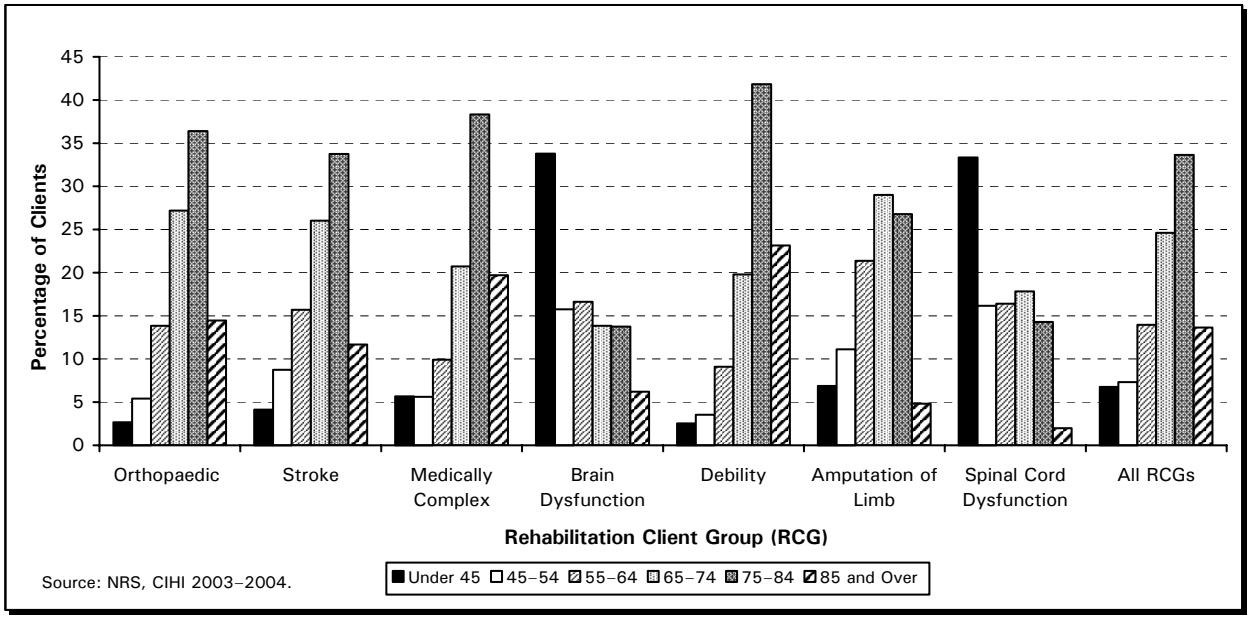

Figure 3.5 Age at Admission of Inpatient Rehabilitation Clients by Rehabilitation Client Group, 2003–2004

Other RCGs with high proportions of clients over the age of 75 are medically complex (58%), orthopaedic (51%) and stroke RCGs (45%). Amputation of limb clients tended to be slightly younger than orthopaedic and stroke clients, with the highest proportions of clients in the 65 to 74 and 75 to 84 age groups (29% and 27% respectively). The brain dysfunction and spinal cord dysfunction RCGs also showed similarities in age distributions, and had a relatively higher proportion of clients in the younger age groups (under 45 years): 34% and 33%, respectively. *(Quick Stats, Table 17)*

Analyzing both the age and sex of clients within each RCG showed that for the orthopaedic, debility, limb amputation, brain dysfunction and spinal cord dysfunction RCGs, a substantial segment of clients within the individual RCGs consisted of either male or female clients in one or two age groups. Figure 3.6 shows that orthopaedic clients tended to be older women: two-fifths (38%) of orthopaedic clients were females aged 75 years and over, while males of the same age group accounted for only 13% of orthopaedic clients. Similarly, debility clients also tended to be women aged over 75 years—accounting for 42% of all clients in that RCG. In contrast, among limb amputation clients, males aged between 65 and 84 years were the most predominant group, accounting for two-fifths (39%). Females of the same age group accounted for only 17% of clients in this RCG. Males under 45 years of age were the most predominant group in both brain dysfunction and spinal cord RCGs and accounted for 24% and 23% of these RCGs, respectively.

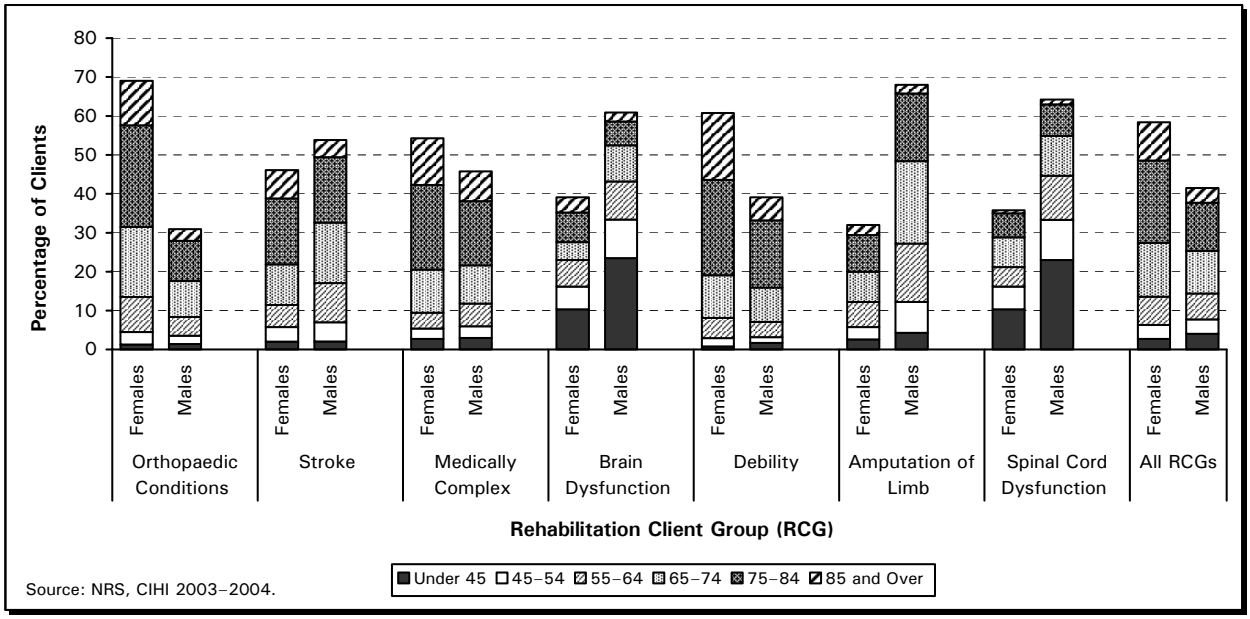

Figure 3.6 Age and Sex of Inpatient Rehabilitation Clients by Rehabilitation Client Group, 2003–2004

Within the stroke and medically complex client groups, the proportions were similar between the sexes. For example, the largest proportion of stroke clients were those aged between 75 and 84 years and had almost equal representation of males and females: each accounting for 17% of all stroke clients. *(Quick Stats, Table 18)*

Brain and Spinal Cord Dysfunction Clients in the National Rehabilitation Reporting System

Within the NRS, brain and spinal cord dysfunction RCGs are further sub-divided into traumatic and non-traumatic categories, as a means of differentiating the origin of the dysfunction. An examination of these RCGs according to the traumatic and non-traumatic categories reveals patterns in the occurrence of these disabilities by age and sex, as shown for the spinal cord dysfunction RCG in Figure 3.7.

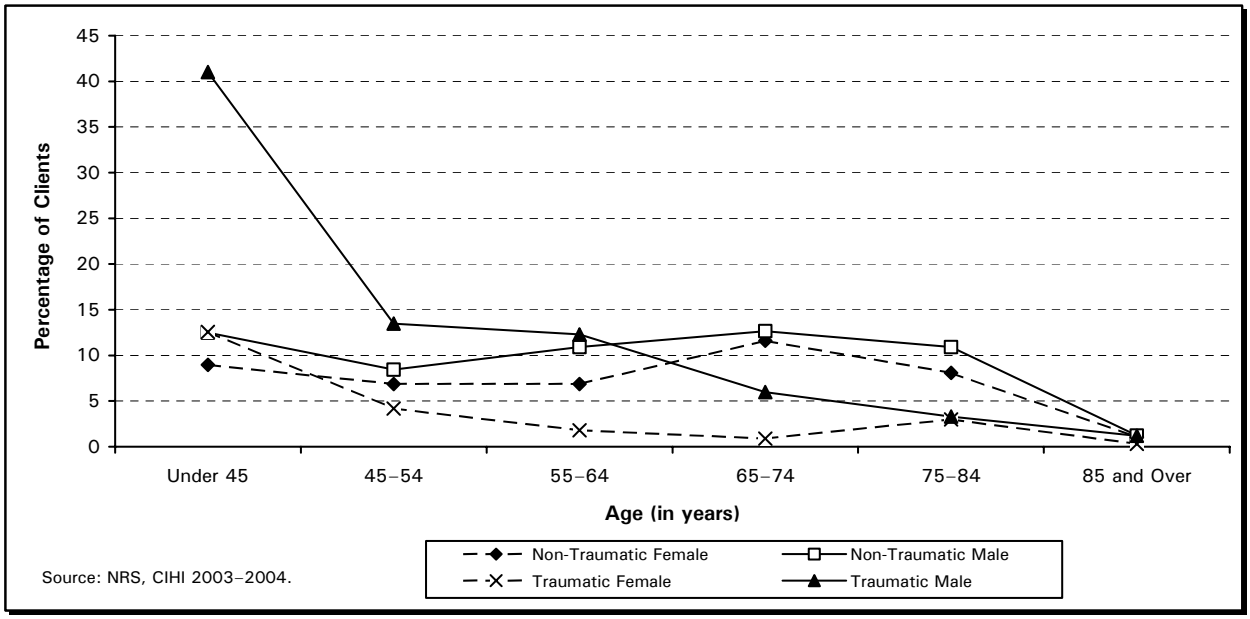

Figure 3.7 Distribution of Inpatient Rehabilitation Clients With Spinal Cord Dysfunction by Age and Sex, 2003–2004

As Figure 3.7 shows, males under the age of 45 with traumatic spinal cord dysfunction represent a significant proportion of clients in the traumatic spinal cord dysfunction RCG, and also the highest proportion of clients in the overall spinal cord dysfunction RCG. Females with traumatic spinal cord dysfunction also represent the largest proportion in this age group, although substantially lower than the male population.

In general, the proportion of traumatic spinal cord dysfunction clients decreases with increasing age. A similar pattern is seen with brain dysfunction clients (figure not shown). This trend suggests that any in-depth analysis of brain dysfunction and spinal cord dysfunction clients should include differentiation of the traumatic and non-traumatic groups, in order to get a more accurate picture of the specific clients most frequently seen in each group. *(Quick Stats, Tables 19 and 20)*

Pre-Admission Living Setting

During 2003–2004, over nine-tenths (93%) of inpatient rehabilitation clients were living in a private house or apartment prior to their admission to a hospital setting. This proportion ranged from 85% of clients in the neurological conditions RCG to 95% of clients in the major multiple trauma, arthritis, and spinal cord dysfunction RCGs.

In the NRS, if a client lives in a private house or apartment, information is also collected on whether or not he or she received paid health services prior to admission. Paid health services refer to health care services paid for either privately or through insurance and received in the client's home. It does not include services covered under a provincial health plan. Figure 3.8 shows that the proportion of clients who lived in a private house or apartment *and* received paid health services varied across the RCGs. This proportion was largest among clients in the debility and amputation of limb RCGs (33% and 39% respectively) and smallest among clients in the major multiple trauma and brain dysfunction RCGs (4% and 7% respectively). The stroke RCG also had a relatively small proportion of clients (11%) who received paid health services in their private house or apartment prior to admission. *(Quick Stats, Table 21)*

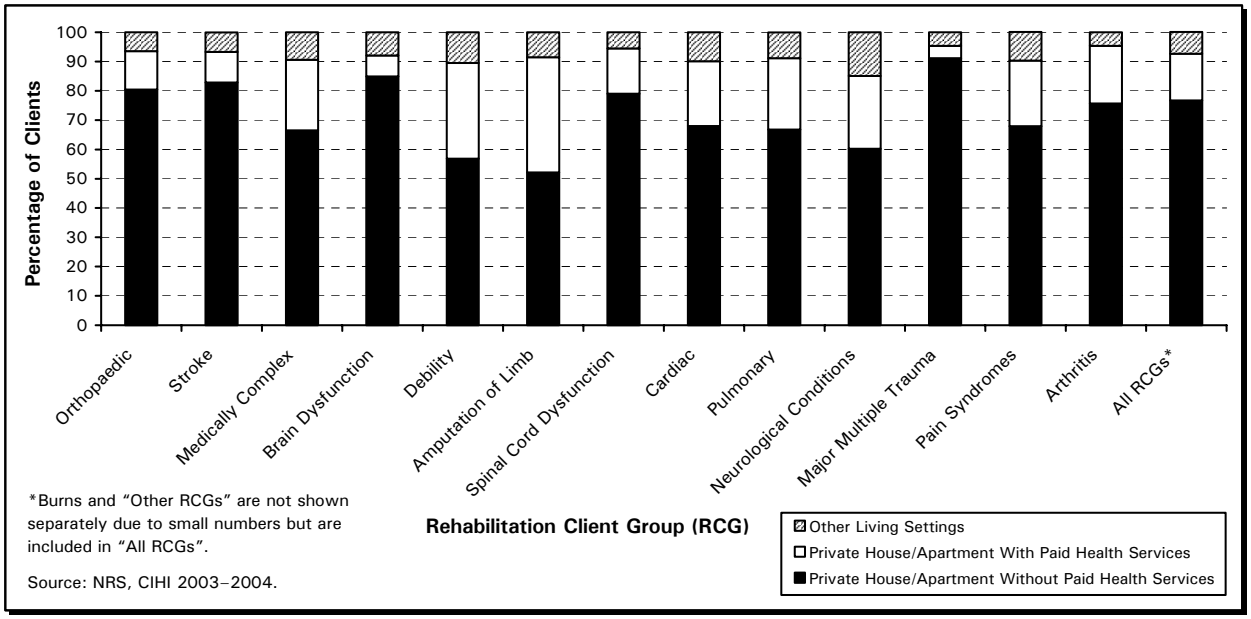

Figure 3.8 Pre-Admission Living Setting of Inpatient Rehabilitation Clients by Rehabilitation Client Group, 2003–2004

Total Function Scores

When clients are admitted to a participating NRS facility, their motor and cognitive functional abilities are assessed within 72 hours of admission using the Functional Independence Measure (FIM™) instrument, developed by the Uniform Data System for Medical Rehabilitation (UDS$_{MR}$). A similar assessment is carried out, whenever possible, when the client is discharged from the facility. The FIM™ instrument contains 18 elements: 13 of these elements assess components of motor function, such as eating and walking (referred to as motor elements), and 5 elements assess cognitive abilities such as communication and social interaction (referred to as cognitive elements). A full list of the elements can be found in Appendix C of this report. Each of the 18 FIM™ instrument elements is rated on a scale from 1 to 7, with a higher score indicating that the client has a greater ability to perform the task involved with that element. The scores for the 18 elements can be added together to obtain a Total Function Score,[4] which provides a summary measure of the clients' overall functional ability. The Total Function Score ranges from 18 to 126, with a higher score indicating a relatively higher overall level of function. Although Total Function Score is often broken down into separate scores for motor and cognition domains, this report makes reference only to the aggregate Total Function Score for each RCG.

Total Function Scores at Admission

Figure 3.9 shows the distribution of the admission Total Function Scores for all clients admitted to participating rehabilitation facilities during 2003–2004. The distribution of the admission Total Function Score indicates that relatively fewer clients had low Total Function Scores while the majority of clients had Total Function Scores in the higher ranges. The average (mean) and median admission Total Function Scores were 85 and 89, respectively.

Figure 3.10 shows that clients in the arthritis RCG had the highest average admission Total Function Score (97). Three other RCGs had average admission Total Function Scores in the nineties: pulmonary (95), amputation of limb (93), and pain syndromes (92). RCGs with the next highest average admission Total Function Scores were orthopaedic conditions (89), cardiac conditions (87) and medically complex conditions (84). RCGs with the lowest average admission Total Function Scores were neurological conditions (78), brain dysfunction (78), spinal cord dysfunction (77), major multiple trauma (77), and stroke (74). *(Quick Stats, Table 22)*

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

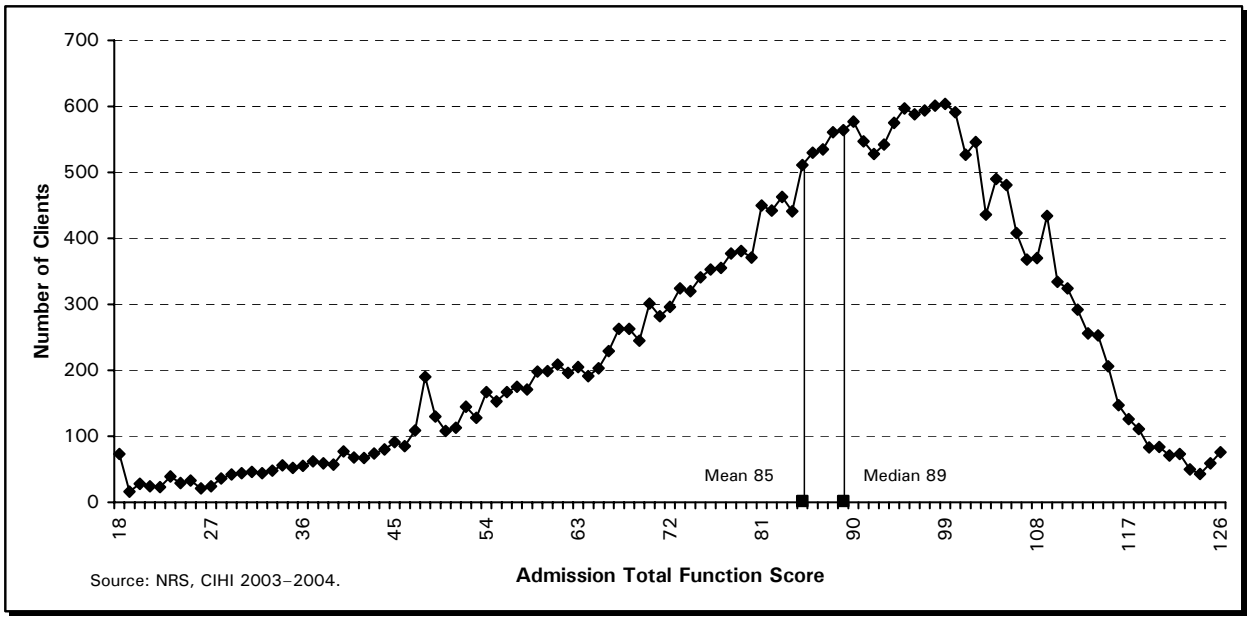

Figure 3.9 Distribution of Admission Total Function Score of Inpatient Rehabilitation Clients, 2003–2004

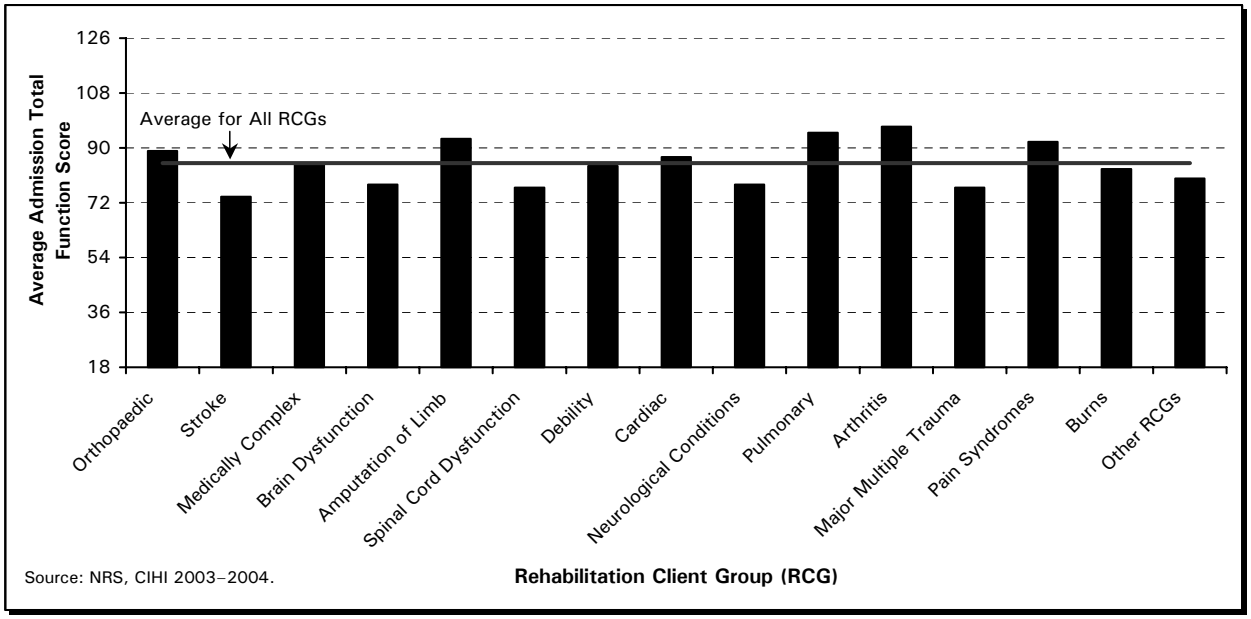

Figure 3.10 Average Admission Total Function Score for Inpatient Rehabilitation Clients by Rehabilitation Client Group, 2003–2004

Investigation of clients' admission Total Function Scores and their pre-admission living setting (see previous section) suggests that clients who lived in a private house or apartment without paid health services prior to admission appear to have had higher functional abilities compared to clients who received paid health services at home. The average admission Total Function Scores of all clients who did not receive paid health services was 87 compared to 81 for clients who received paid health services. This trend was consistent across all RCGs, with the exception of the major multiple trauma RCG. Clients who lived at home and who did not receive paid health services also had higher admission Total Function Scores compared to clients who lived in other living settings such as assisted living settings and residential care facilities prior to admission. *(Quick Stats, Table 23)*

Total Function Scores at Discharge

Not all inpatient rehabilitation clients are able to have a full NRS functional assessment at discharge due to reasons such as unexpected transfer to another unit or facility, or death. Among the clients discharged in 2003–2004, 4% did not have a full assessment using the FIM™ instrument at discharge and therefore did not have a discharge Total Function Score. The proportion of clients without a discharge Total Function Score varied across RCGs from 3% of clients in the orthopaedic conditions, brain dysfunction, amputation of limb, and neurological conditions RCGs to 12% of clients in the debility RCG. The analysis of the discharge Total Function Score relates only to those clients for whom functional ability was assessed using the FIM™ instrument at both admission and discharge, which should be considered when interpreting the results presented in this report.

As a note of interest, the admission Total Function Scores of clients who were assessed at both admission and discharge were higher, on average, than those clients who were assessed only at admission (i.e. did not have a discharge Total Function Score). The average admission Total Function Score among clients who were assessed at both admission and discharge was 86 compared with 73 for those who were assessed only at admission. Further investigation is required to assess potential explanatory factors for this variation. However, it may be possible that clients who were not able to be assessed at discharge due to reasons such as unexpected transfer or death may have had more health problems and may have been less functional on admission than those clients who were able to complete their rehabilitation stay and were able to be assessed at discharge. *(Quick Stats, Table 24)*

Overall, clients discharged from participating rehabilitation facilities during 2003–2004 who had a discharge assessment conducted using the FIM™ instrument had an average discharge Total Function Score of 104. Clients admitted to facilities for rehabilitation relating to burns or arthritis had the highest average discharge Total Function Scores (110 for both groups). The lowest average Total Function Scores at discharge were observed among clients admitted to facilities with neurological conditions (94), stroke (96), debility (97), and spinal cord dysfunction (98). *(Quick Stats, Table 25)*

Change in Total Function Scores From Admission to Discharge

Improvement in client function, both physical and cognitive, is the underlying goal of rehabilitation. Whether or not a client returns to his or her pre-injury/illness level of ability, the objective of the clinical team is to maximize function so that the client can live as independently as possible. Functional levels in rehabilitation are measured using a variety of quantitative assessment tools. In the NRS, function is largely measured using the FIM™ instrument. Analysis of admission and discharge Total Function Scores provides some information about the variations in functional abilities of clients in the different RCGs. Comparisons between client groups based on the change in Function Scores from admission to discharge shed some light on the improvements in motor and cognitive function that occur as a result of rehabilitation. A larger increase in Total Function Score from admission to discharge implies that a greater level of functional improvement (relative to admission) has been achieved. This section analyzes the average change in Total Function Score from admission to discharge for the various NRS Rehabilitation Client Groups.

Overall, the average Total Function Score change for all clients during 2003–2004 was 19, from a score of 86 at admission to 104 at discharge. Analyzing change in Total Function Score by RCG may provide valuable information towards identifying variations in functional improvement in clients with different health conditions. Figure 3.11 displays the change in average Total Function Score of clients for each RCG from admission to discharge. Major multiple trauma clients had the largest average change in Total Function Score at 31 points, increasing from a score of 77 at admission to 108 at discharge. Brain dysfunction, stroke and spinal cord dysfunction clients showed similar increases ranging from 21 to 22 points. Pulmonary disorder clients had the smallest average change in Total Function Score: an increase of 11 points. Please note than the absolute change in Total Function Score from admission to discharge may not equal the change in Total Function Score as displayed in the figures and tables due to rounding of numbers. *(Quick Stats, Table 25)*

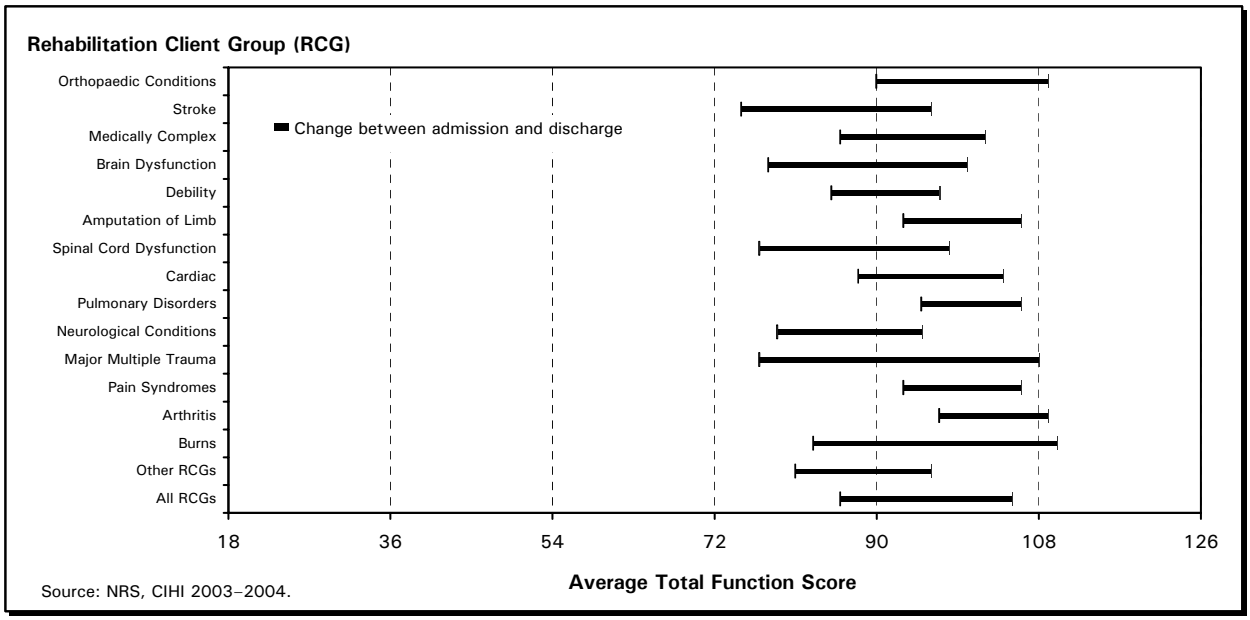

Figure 3.11 Change in Average Total Function Score of Inpatient Rehabilitation Clients by Rehabilitation Client Group, 2003–2004

Change in Total Function Score is relative to admission Total Function Score and should not be interpreted in isolation. When examining this figure, relative "start" and "end" points (admission and discharge Total Function Scores) should be considered. The arthritis RCG, for example, shows a relatively small change in Total Function Score from admission to discharge of 13 points. This could be partially attributable to the chronic and progressive nature of many diagnoses related to arthritis. However, clients in the arthritis RCG also had the highest average Total Function Score on admission—97 points, resulting in a smaller range of potential improvement as measured using the FIM™ instrument. Clients admitted under the burn and debility RCGs had similar average Total Function Scores on admission (83 and 85 respectively), but the data suggest that burn clients, on average, appear to regain more function relative to clients admitted under the debility RCG. Variations in functional improvement of clients in the different RCGs may be related to factors such as age, pre-injury/illness functional status, and length of rehabilitation stay, among other things. Further research is required to investigate any link between these factors and the potential for change in Total Function Score for the various client groups.

Length of Stay

Length of stay in a rehabilitation program or unit can be influenced by multiple factors: client age, number of beds in a facility, staffing, and the availability of needed post-discharge care resources, to name a few. As such, it can be challenging to meaningfully compare lengths of stay for rehabilitation clients in general. However, it may be of interest to note some of the differences in lengths of stay across various client groups.

Figure 3.12 shows the median length of stay, excluding service interruptions, for clients in each RCG. Clients in the spinal cord dysfunction and burn RCGs had the longest median length of stay (44 and 43 days respectively) while clients in the arthritis and orthopaedic conditions RCGs had the shortest median length of stay (both 14 days). Cardiac disorder clients also had a relatively short median length of stay at 15 days. Some of these variations may be attributable, in part, to the different levels of care required for these client groups. For example, spinal cord dysfunction clients frequently require specialized rehabilitation training, often taking longer to make functional gains due to the degree of disability associated with spinal cord injury. *(Quick Stats, Table 26)*

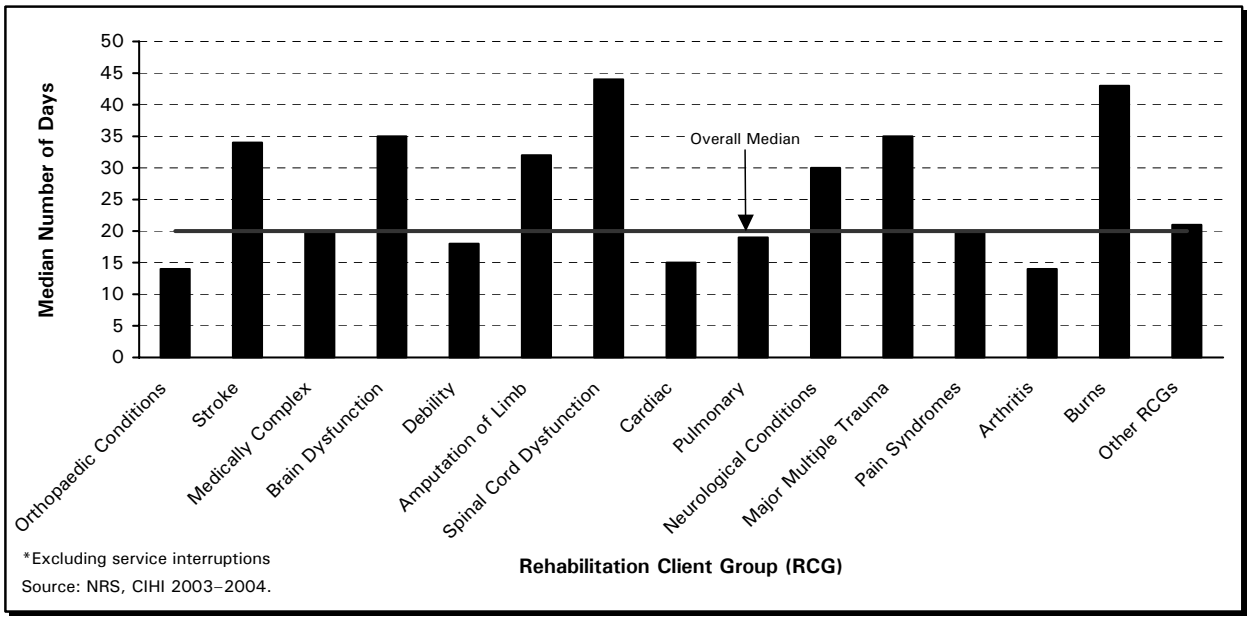

Figure 3.12 Median Length of Stay* of Clients in Inpatient Rehabilitation by Rehabilitation Client Group, 2003–2004

Length of Stay Efficiency

The NRS concept known as "length of stay efficiency" is a way of measuring the change in functional status of a rehabilitation client from admission to discharge. Average length of stay efficiency is calculated by dividing change in Total Function Score by length of stay for each individual client, and then taking the average of all of the individual values. As with length of stay, service interruption days are not included in this calculation. Length of stay efficiency measures the functional progress made by clients in relation to how long they stayed in rehabilitation. It demonstrates the change in Total Function Score (as measured using the FIM™ instrument) per day of client rehabilitation. In general, a higher value for length of stay efficiency implies that client functional status improved to a greater degree in a shorter period of time.

The average length of stay efficiency for all clients discharged from rehabilitation facilities in 2003–2004 was 1.2. In other words, for each day that a client participated in an inpatient rehabilitation program, their Total Function Score increased, on average, slightly more than one point. The average length of stay efficiency ranged from 0.4 for amputation of limb clients to 1.6 for orthopaedic clients. *(Quick Stats, Table 26)*

Care should be exercised when examining length of stay efficiency values. As mentioned earlier, change in Total Function Score and length of stay—both of which are used in the calculation of length of stay efficiency—can be influenced by multiple factors. This indicator is not intended to be used in isolation but rather may be used alongside other information such as resource availability, age distribution and admission Total Function Scores for the various Rehabilitation Client Groups, in order to provide more insight into the variations in functional improvement across RCGs.

Clients Reporting Pain

The presence of pain can impede the ability to progress in a rehabilitation setting. In the NRS, clients are asked at admission to report whether or not they are currently experiencing pain. This is one of the two data elements collected in the NRS that is based on client self-reporting, rather than on what the clinician observes. In 2003–2004, two thirds of clients (67%) reported they had some degree of pain at admission, 29% reported no pain, and the remaining 4% of clients were unable to respond.

Figure 3.13 shows some variation in the proportion of clients who reported pain across the different RCGs. The RCGs with the largest proportion of clients reporting pain at admission were pain syndromes (91%), arthritis (90%), major multiple trauma (84%), and orthopaedic conditions (84%). The RCGs with the lowest proportion of clients reporting pain at admission were stroke (37%), pulmonary disorders (44%), and brain dysfunction (45%). It was noted that the brain dysfunction RCG had the highest proportions of clients who were unable to answer (7%). *(Quick Stats, Table 27)*

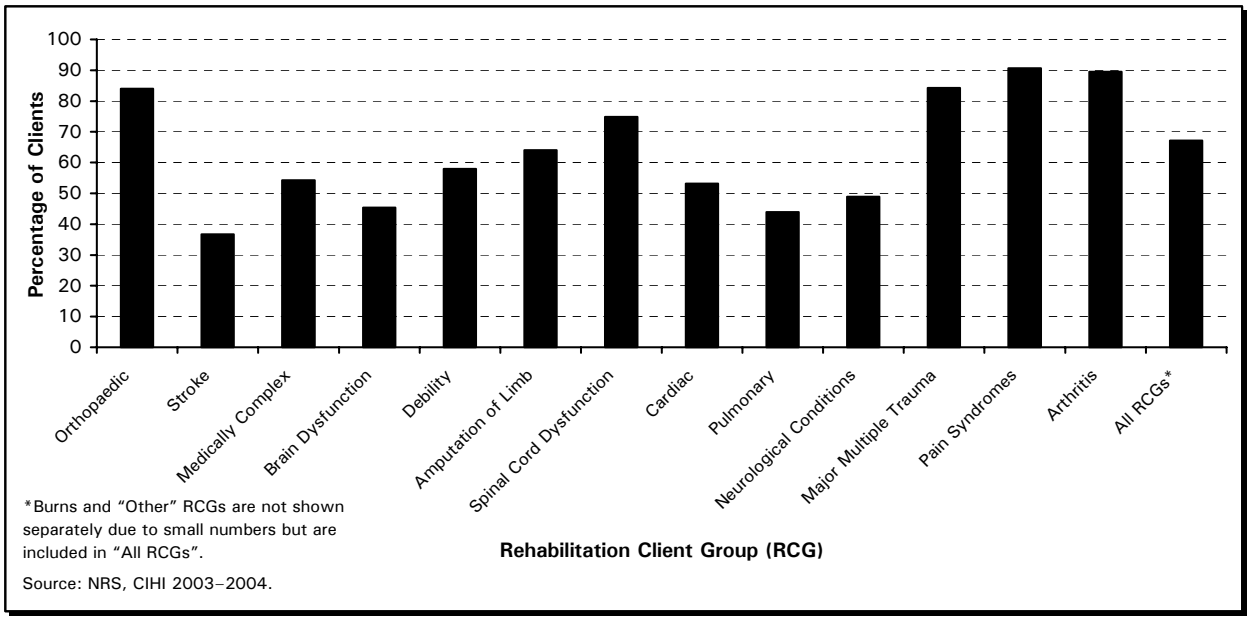

Figure 3.13 Inpatient Rehabilitation Clients Reporting Pain at Admission by Rehabilitation Client Group, 2003–2004

Clients reporting pain at the time of admission were also asked at admission and discharge about the intensity of the pain (mild, moderate or severe) and the number of activities that were impacted by the pain (none, a few, some or most). Clients were identified as having an improvement in pain levels if they had less pain and/or fewer activity limitations due to pain at discharge than they had at admission, or if they no longer had any pain on discharge.

During 2003–2004, among clients who reported experiencing pain at the time of admission and were able to rate their level of pain at admission and discharge (63% of all clients), two-thirds (66%) reported a reduction in pain levels and/or fewer activity limitations due to pain by the end of their stay in rehabilitation. Figure 3.14 displays the proportion of clients reporting improvement in pain by RCG. The proportion of clients reporting improvement in their level of pain ranged from a low of 47% among debility clients to a high of 70% among orthopaedic clients. *(Quick Stats, Table 28)*

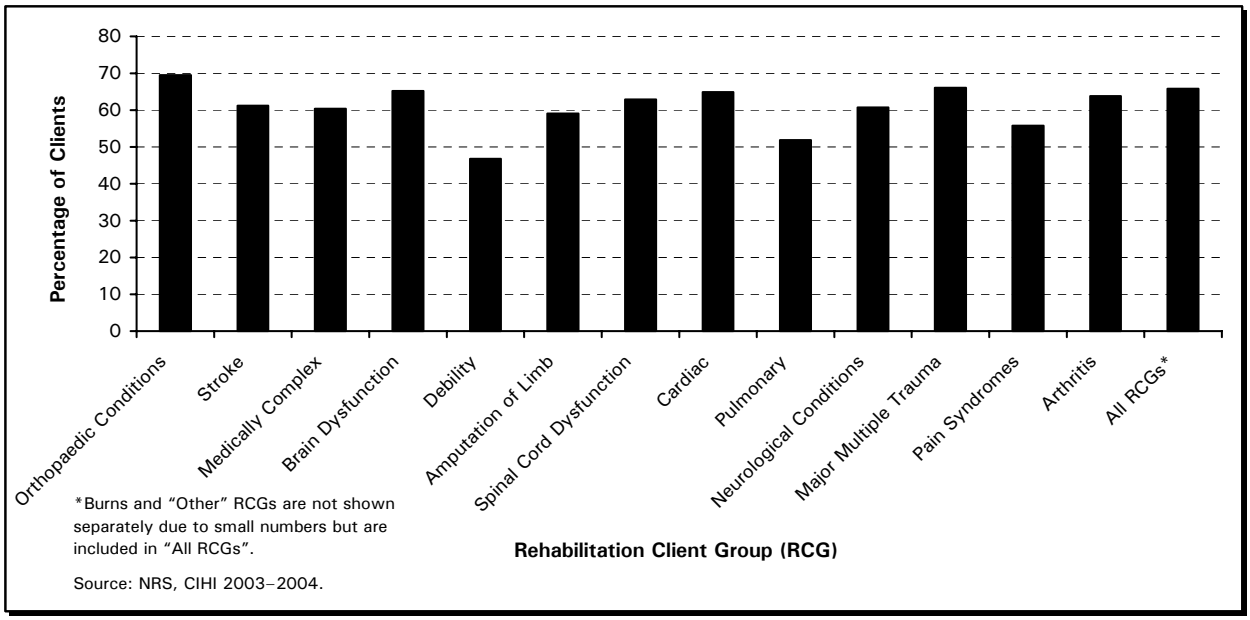

Figure 3.14 Inpatient Rehabilitation Clients Reporting an Improvement in Pain at Discharge by Rehabilitation Client Group, 2003–2004

Reasons for Discharge

Chapter 2 discussed some of the reasons for discharging clients from an inpatient rehabilitation setting. Clients were identified as being discharged with their goals either met or not met, and also whether they were discharged back into the community or transferred or referred to another facility or agency. In 2003–2004, 79% of all NRS clients met their rehabilitation goals as determined at admission and returned to live in the community. Eleven percent met their goals but were discharged or transferred to units within the same facility or to other facilities, while 9% were reported as not having met their service goals upon discharge, regardless of discharge destination. In this section, similar information is presented by individual RCG.

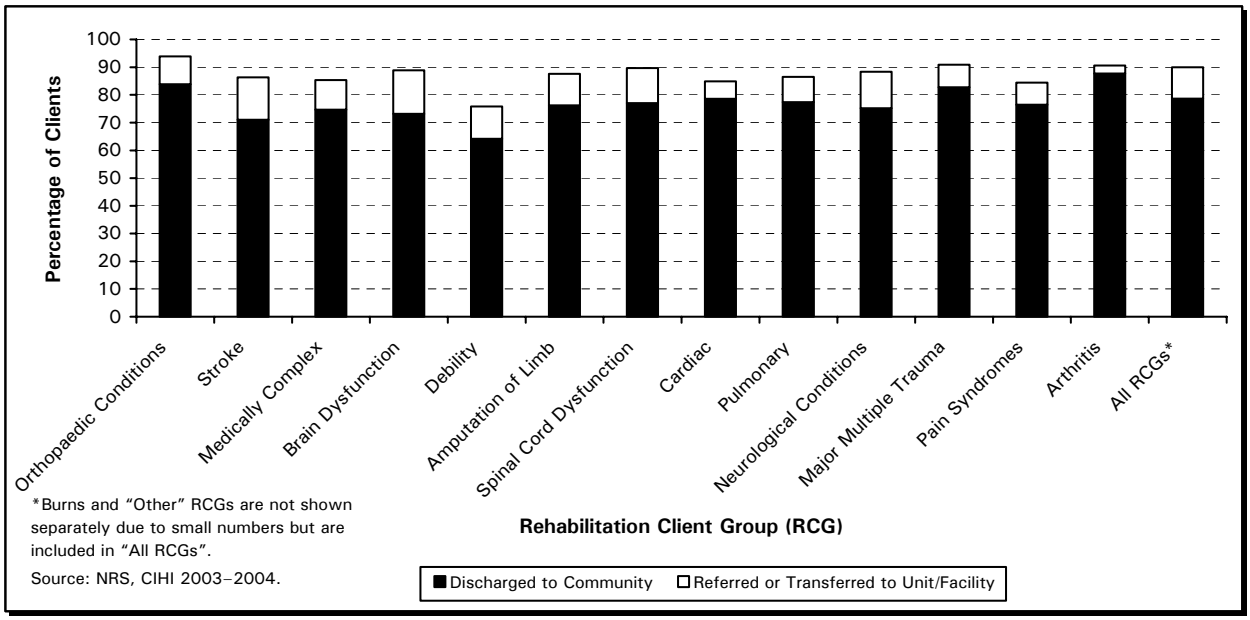

Figure 3.15 Inpatient Rehabilitation Clients Who Met Their Service Goals at Discharge by Rehabilitation Client Group, 2003–2004

Figure 3.15 shows that reasons for discharge in the NRS varied by RCG. Although the majority of clients within each RCG met their service goals and returned to living in the community, the proportion doing so ranged from a low of 64% for the debility clients to a high of 90% for clients admitted with burns. RCGs with the highest proportions of clients meeting their goals and returning to the community were arthritis (88%), orthopaedic conditions (84%), and major multiple trauma (83%). RCGs with lowest proportions were debility (64%), stroke (71%), and brain dysfunction (73%).

Brain dysfunction and stroke RCGs had relatively high proportions of clients who met their service goals but were referred or transferred to another unit or facility at the time of discharge (16% and 15% respectively). Other RCGs with similar proportions of clients achieving the stated rehabilitation goals but remaining in an inpatient or facility setting were neurological conditions (13%), spinal cord dysfunction (13%), debility (12%), amputation of limb (11%), and medically complex (11%). *(Quick Stats, Table 29)*

Pre-Admission and Post-Discharge Living Setting

The NRS data suggest that during 2003–2004, 82% of all clients who were living in a private house or apartment prior to their admission to an inpatient or facility setting returned home following discharge. However, this proportion varied across the RCGs. Orthopaedic and arthritis clients had the highest proportion of clients who returned to their private house or apartment upon discharge (89% and 88% respectively), while the stroke and debility clients had the lowest proportion (71% and 67% respectively).

Chapter 2 also discussed those inpatient rehabilitation clients who returned to their private house or apartment on discharge and began or continued to receive paid health services at home. Among clients who lived in a private house or apartment prior to admission, less than half (44%) returned home and received paid health services following discharge. One in eight (11%) had received paid health services prior to admission, while a third (32%) received services only after their discharge.

Figure 3.16 shows that the proportion of clients receiving paid health services varied by RCG. At least half of clients in the debility, medically complex, amputation of limb, and cardiac disorder RCGs received paid health services after they returned to their private house or apartment. The amputation of limb RCG also had one of the highest proportions of clients who received paid services both before and after their inpatient rehabilitation (26% before admission and 25% after discharge). Although clients in the orthopaedic conditions, stroke, brain dysfunction, and major multiple trauma RCGs each had a relatively high proportion of clients receiving paid health services after inpatient rehabilitation (between 31% and 42%), these RCGs had the lowest proportion of clients receiving paid services both before and after inpatient rehabilitation (between 2% and 10%). Among these RCGs, the major multiple trauma RCG had the lowest proportion of clients who received paid health services before their inpatient rehabilitation (2%). However, 42% of these clients had arranged to receive paid health services after they returned home following their stay in hospital. *(Quick Stats, Table 30)*

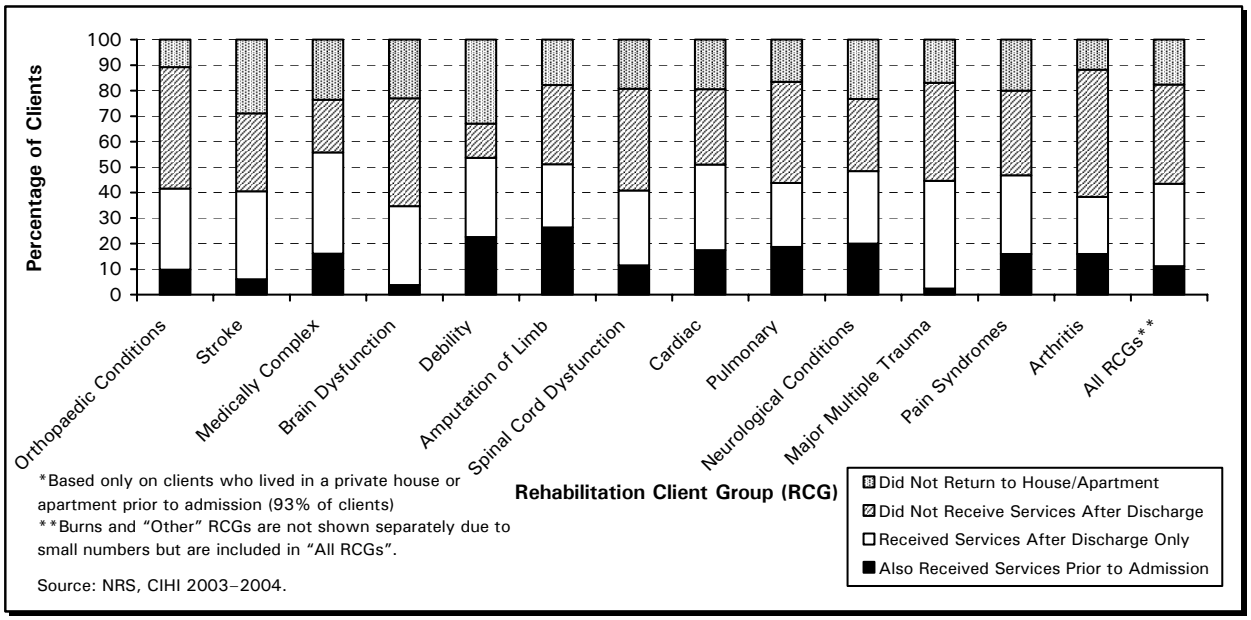

Figure 3.16 Receipt of Paid Health Services in a Private House or Apartment After Inpatient Rehabilitation* by Rehabilitation Client Group, 2003–2004

Summary

Separating rehabilitation clients into groups according to the principle diagnosis/condition that led to the rehabilitation referral assists in making the aggregate NRS data more meaningful. Chapter 3 described similar information as presented in Chapter 2 but presented it by individual RCG. As a result, certain variations and patterns appear that may help to further explain understand the different needs and challenges faced by clients in the various groups.

What We Know

- Orthopaedic and stroke clients accounted for two-thirds of all inpatient rehabilitation clients discharged from participating facilities in 2003–2004.

- Orthopaedic clients tend to be older females, while traumatic brain and spinal cord dysfunction clients tend to be younger males.

- Three-quarters of orthopaedic clients were admitted to General facilities, while the same proportion of spinal cord dysfunction clients were admitted to Specialty facilities.

- Clients admitted with arthritis had the shortest median length of stay in rehabilitation and highest average admission Total Function Score. Clients admitted with spinal cord dysfunction had the longest median length of stay and were among the RCGs with lowest average admission Total Function Score.

- The majority of clients within each RCG met their service goals and returned to live in the community following rehabilitation, ranging from 64% of clients in the stroke RCG to 90% of clients in the arthritis RCG.

- The stroke RCG accounted for one-fifth of all episodes in the NRS during 2003–2004, and was among RCGs with the lowest proportion of clients returning to their private home or apartment on discharge.

What We Don't Know

- With what degree of confidence we can say that clients with the same absolute change in Total Function Score from admission to discharge have achieved an equivalent level of improvement in function.

- The specific reasons for the large variation in lengths of stay between the different client groups.

Chapter 4. Characteristics of Older Inpatient Rehabilitation Clients

The first three chapters in this report focused on all inpatient rehabilitation clients in the National Rehabilitation Reporting System (NRS). The next three chapters present similar information, but with a specific focus on the "older" inpatient rehabilitation population: clients aged 75 years and over that received inpatient rehabilitation services from participating facilities in 2003–2004. As discussed in the first chapter, this group represents nearly half (47%) of all NRS episodes for that time period.

Between 2001 and 2026, the number of Canadians over the age of 75 is projected to nearly double.[5] As of July 2004, the number of Canadians over the age of 75 was roughly 1.9 million.[6] Information that supports decision-making and resource planning for this population will be valuable for health care facilities to address the needs of this ageing population. The NRS has chosen to highlight the 75 and over age category in this report in order to present characteristics of this group of clients that may be unique as compared to the younger adult rehabilitation population. The intention is to identify areas where specialized needs exist for this group, and to recognize areas where information gaps may exist.

Chapter 4 provides information on the various health conditions for which these clients were frequently admitted for rehabilitation. Detailed information on the five most commonly occurring Rehabilitation Client Groups (RCGs) for this population is presented. In addition, information on the co-existing health conditions of this group of clients (referred to as comorbid conditions) is provided as a means to further understand the unique characteristics of the older rehabilitation population. The data are generally presented across two major age groups: 75 to 84 and 85 and over.

In the 2003–2004 reporting period, just under half of clients (47%) discharged from participating facilities were aged 75 years and over—making up 12,677 episodes out of the 26,800 episodes used for this report. About one percent (126 episodes) of older clients had a follow-up NRS assessment completed between 80 and 180 days after discharge. This optional follow-up assessment is useful in determining how well clients have maintained the functional abilities that were gained during rehabilitation, and the degree to which they were able to re-integrate into the community. Analyses on the follow-up data will be presented in Chapter 6 of this report.

[5] Statistics Canada, Population projections for 2001, 2006, 2011, 2016, 2021 and 2026. 2001
[6] Statistics Canada, Population by sex and age group. 2004

Rehabilitation Client Groups in the Older Population

Recall from Chapter 3 that Rehabilitation Client Groups (RCGs) classify NRS clients according to the condition/illness/injury that led to the admission for rehabilitation. A list of RCGs used in this report is available in Appendix B. This section discusses the various health conditions for which older rehabilitation clients were admitted to rehabilitation and highlights those conditions seen most frequently. In 2003–2004, more than two-thirds of older clients (69%) reported in the NRS received rehabilitation services from participating NRS facilities for orthopaedic and stroke conditions. Figure 4.1 shows that just over half (52%) of older clients were admitted to facilities to receive rehabilitation for orthopaedic conditions (for example, following a hip fracture or joint replacement), while a sixth (16%) received rehabilitation following a stroke. Other RCGs that were seen somewhat frequently were medically complex conditions (8%), debility (6%), and cardiac conditions (4%). A further 3% of clients received rehabilitation services following pulmonary disorders and 3% following limb amputation. The remaining 8% of older clients received rehabilitation services for conditions such as brain dysfunction, neurological conditions, spinal cord dysfunction, arthritis, major multiple trauma, and pain syndromes. The average age of older clients in these RCGs ranged between 80 and 84 years. *(Quick Stats, Table 31)*

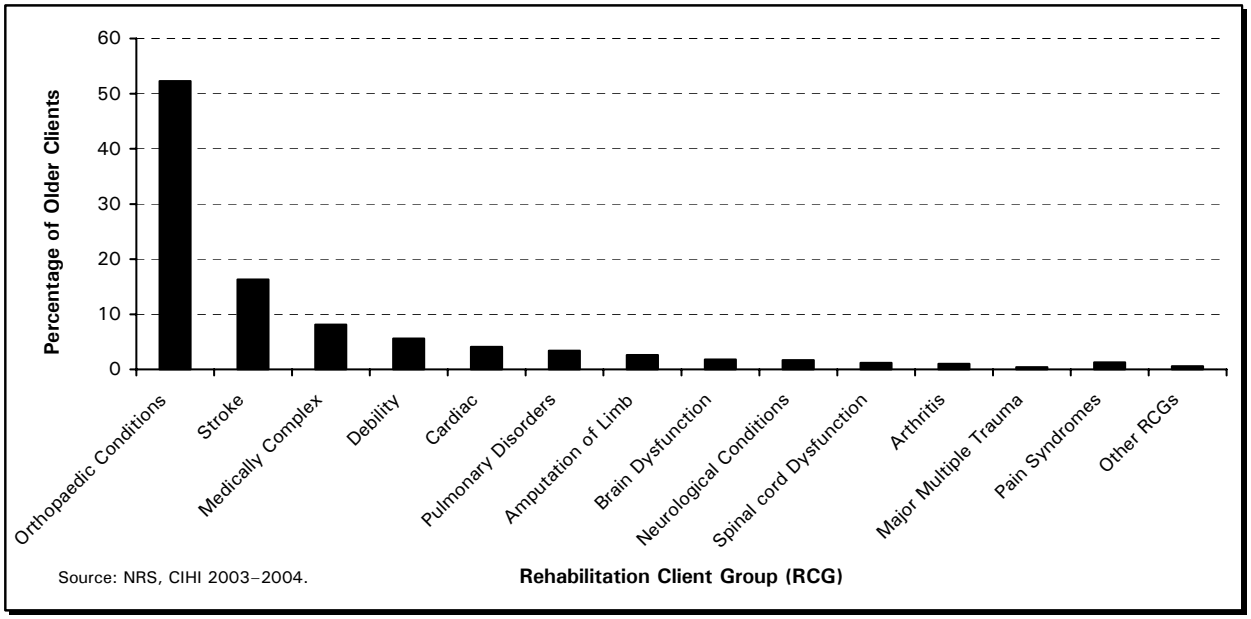

Figure 4.1 Distribution of Older Inpatient Rehabilitation Clients by Rehabilitation Client Group, 2003–2004

Demographic Characteristics in the Older Population

The distributions of RCGs within the two age groups of older NRS clients (ages 75 to 84 and 85 and over) appear to reflect a similar pattern as the overall RCG distribution for all age groups seen in Chapter 3. Clients with orthopaedic and stroke conditions accounted for the majority of clients in these two age groups. More than half of clients in the 75 to 84 (53%) and 85 and over (52%) age groups were admitted to rehabilitation for orthopaedic conditions. About a sixth of clients in both age groups were admitted for rehabilitation following a stroke: 17% of clients between 75 and 84 years and 15% of clients aged 85 years and over. The proportion of clients admitted to rehabilitation for the remaining RCGs was also similar in the two age groups of older clients. For example, 8% of clients aged between 75 and 84 years and 10% of clients aged 85 years and over were admitted to rehabilitation facilities to receive services for medically complex conditions. *(Quick Stats, Table 31)*

Figure 4.2 shows a comparison of RCG distribution by age for clients in the two older age groups. It is evident that in 2003–2004, the 75 to 84-age category had the largest representation across all RCGs, ranging from 59% to 88%. The RCGs with the highest proportion of clients in this age group were spinal cord dysfunction (88%), amputation of limb (85%), and neurological conditions (80%). Clients aged 85 years and over had relatively high representations in the pain syndromes (42%), debility (36%), and cardiac (35%) RCGs. *(Quick Stats, Table 32)*

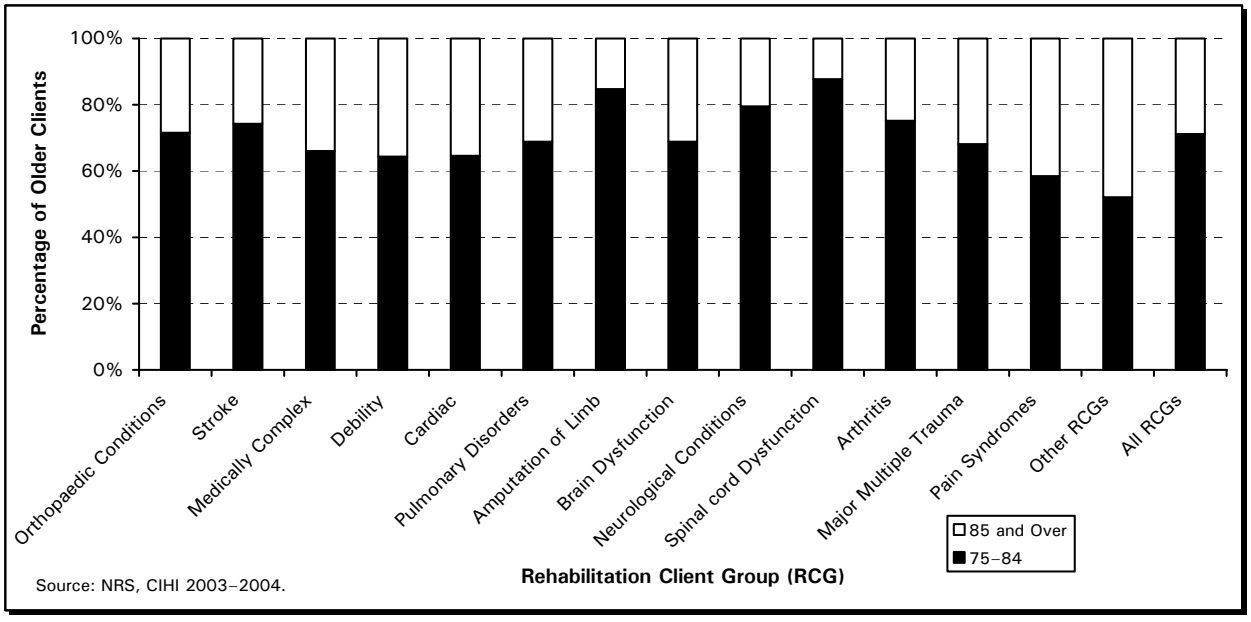

Figure 4.2 Distribution of Older Inpatient Rehabilitation Clients by Age and Rehabilitation Client Group, 2003–2004

Figure 4.3 presents the sex distribution among the older rehabilitation clients in the five most frequently occurring Rehabilitation Client Groups: orthopaedic conditions, stroke, medically complex, debility and cardiac conditions. Clients in these five RCGs together made up 86% of all NRS episodes for clients aged 75 years and over.

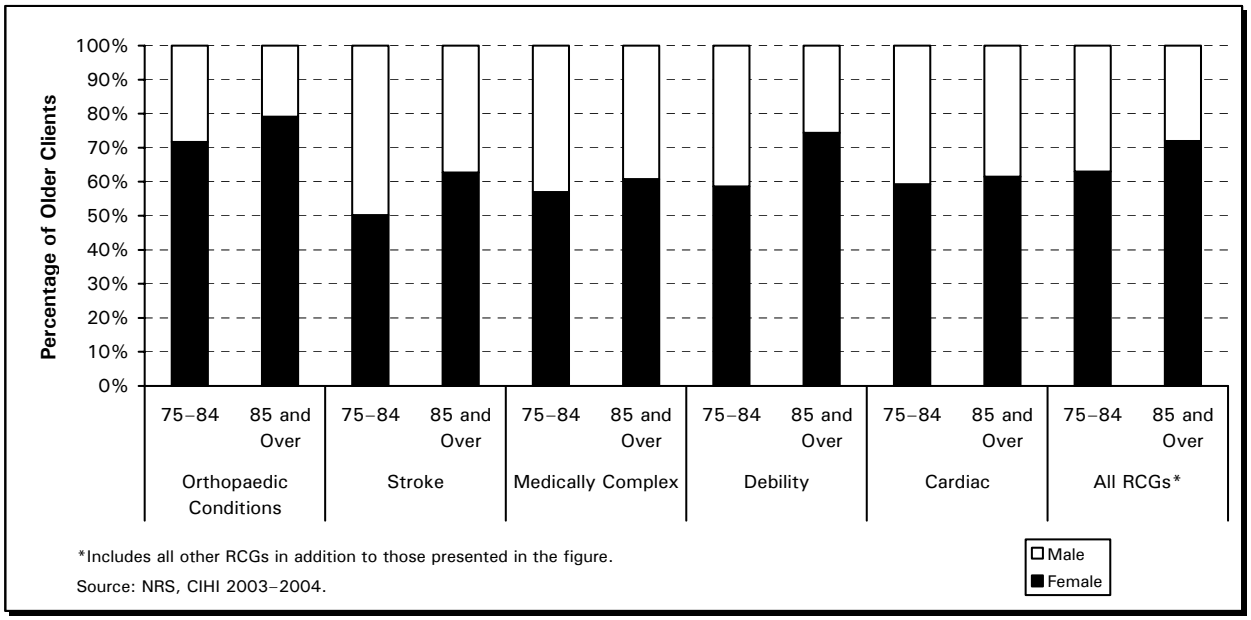

Figure 4.3 Sex Distribution of Older Inpatient Rehabilitation Clients by Age and Rehabilitation Client Group, 2003–2004

Overall, clients in the 75 to 84 age group accounted for the majority of older rehabilitation clients: 71% of clients were in this age group, compared with 29% of clients in the 85 and over age group. Figure 4.3 shows that clients aged 85 years and over had a higher proportion of females across all RCGs as compared to those aged between 75 and 84 years. About seven in ten (72%) of all clients aged 85 years and over were female compared to about six in ten (63%) clients aged between 75 and 84 years. Comparing the sex distribution of older clients across RCGs showed a similar pattern. Orthopaedic and debility clients had the highest proportion of females compared to males in the 85 and over age category: 79% in the orthopaedic RCG and 74% in the debility RCG. The comparative figures for clients between 75 and 84 years in these two RCGs were 72% and 59% respectively. Clients aged between 75 and 84 years in the stroke RCG had equal proportions of males and females: 50% each; however, the percentage of females in the stroke RCG increased to 63% in the 85 and over category. The RCG with the largest variation in the proportion of females between age groups was the debility RCG: 59% in the 75 to 84 age group and 74% in the 85 and over age group. *(Quick Stats, Table 33)*

Pre-Admission Comorbid Health Conditions

Many clients are admitted to inpatient rehabilitation facilities with pre-existing medical conditions that can affect their health, functional status and the resource requirements during the rehabilitation stay. These conditions are referred to as "comorbid" health conditions in the NRS, and are defined as having existed prior to the admission to rehabilitation. Comorbid conditions can include chronic conditions such as diabetes, or more acute conditions such as an infection that may have been acquired during the acute phase of a hospital stay. These medical conditions exist in conjunction with the main diagnostic condition that led to the rehabilitation admission, yet they are separate medical issues that can have varying degrees of impact on the rehabilitation stay. This section of the report provides information on the most frequently existing comorbid health conditions of older rehabilitation clients. Such information may be useful to facilities for resource planning and service provision, as clients may require additional human resources and/or equipment to treat or monitor any comorbid conditions while on the rehabilitation unit.

During 2003–2004, around nine in ten (91%) older rehabilitation clients in the NRS came to rehabilitation with at least one comorbid condition reported in the NRS admission assessment in addition to the main health condition for which they were admitted. The NRS data suggest that the average number of existing comorbid conditions at admission per client increased with average client age. For example, limb amputation clients under 45 years of age had fewer than three comorbidities on average at the time of admission compared with amputation clients aged 85 years and over that had an average of five comorbidities.

Figure 4.4 displays the 15 most frequently occurring comorbid conditions in older inpatient rehabilitation clients by their age distribution. Among those older clients who had comorbid health conditions at the time of admission, more than half (54%) had a diagnosis of hypertension; about a fifth (22%) had been diagnosed with osteoarthritis; a sixth (18%) had a diagnosis of diabetes mellitus (includes Type I and Type II); while, one in seven (14%) had cardiac dysrhythmias or visual loss (e.g. glaucoma, cataracts). Also note that 7% of older clients were reported as being admitted with depressive disorders. A client may have more than one of the above comorbid health conditions, meaning the sum of the number of clients with one or more comorbid health conditions may produce a number greater than the total number of older clients in this category (11,664).

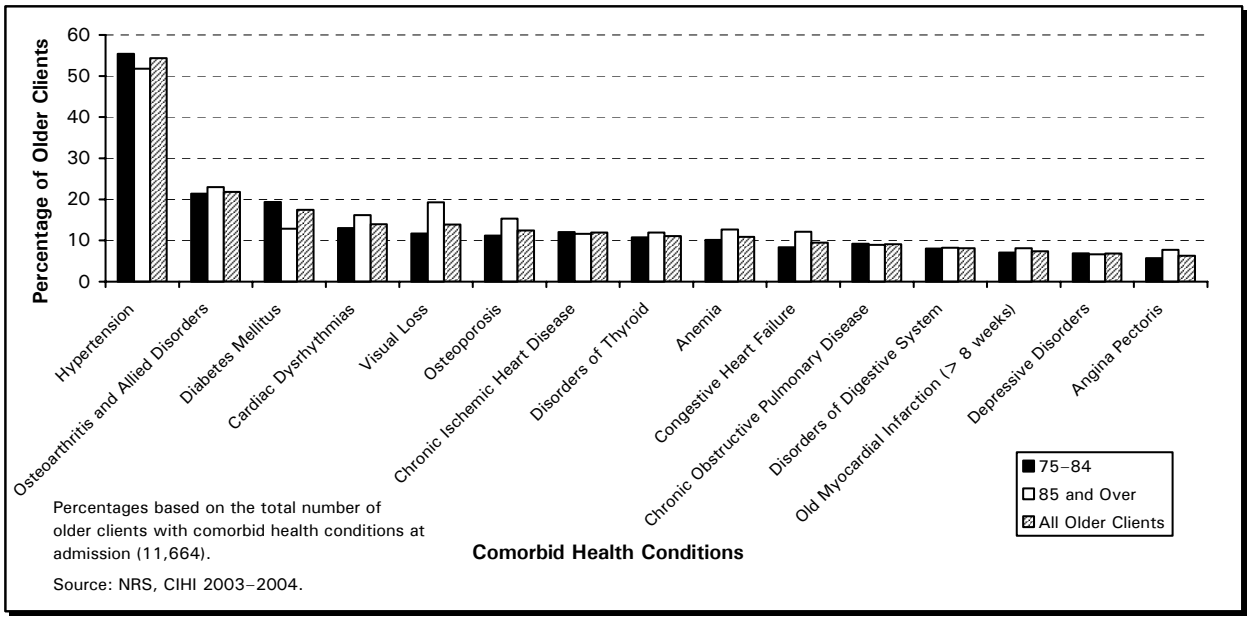

Figure 4.4 Pre-Admission Comorbid Health Conditions in Older Inpatient Rehabilitation Clients, 2003–2004

Some variations between older age groups in the prevalence of certain comorbid conditions are visible. While a fifth (19%) of clients aged between 75 and 84 years had diabetes mellitus, only 13% of clients aged 85 years and over were admitted with that condition reported. Similarly, 12% of clients aged between 75 and 84 years were reported to have some form of visual loss, while this number increased to 19% for clients aged 85 years and over. Other noticeable differences in the proportion of clients in these two age groups existed for those with osteoporosis, cardiac dysrhythmias and congestive heart failure. These comorbid conditions seemed to be more prevalent in the 85 and over age category as compared to the 75 to 84 group. *(Quick Stats, Table 34)*

Pre-Admission Comorbid Health Conditions by Rehabilitation Client Group

A comparison of pre-admission comorbid conditions among the older clients revealed some similarities and some differences in the prevalence of various conditions by RCGs. Figure 4.5 shows that hypertension was the most frequently occurring pre-admission comorbid condition among older clients in the five most frequently occurring RCGs: 64% in stroke clients, 56% in cardiac clients, 55% in orthopaedic clients, 48% in medically complex clients, and 47% in debility clients.

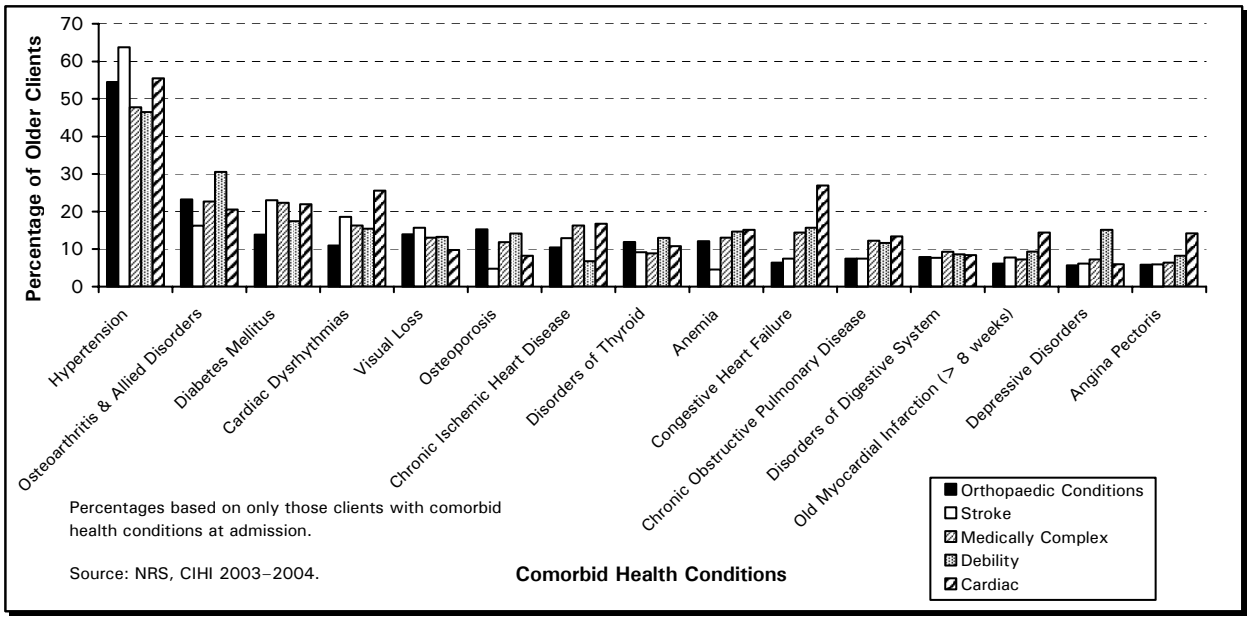

Figure 4.5 Pre-Admission Comorbid Health Conditions in Older Clients by Rehabilitation Client Group, 2003–2004

Osteoarthritis and diabetes mellitus were the next most frequently seen comorbid health conditions among these RCGs. Older clients in the debility group had the highest proportion of osteoarthritis with about one-third (31%) of these clients reported as having this condition. Diabetes mellitus had a relatively higher prevalence among clients in the stroke, medically complex and cardiac RCGs. *(Quick Stats, Table 35)*

Certain comorbid conditions appear more prominently than others in specific RCGs. For example, cardiac clients are more frequently admitted with conditions such as congestive heart failure, cardiac dysrhythmias, angina, anemia or a previous heart attack. Osteoarthritis and depressive disorders appear more often in the debility RCG than in the other four RCGs for older NRS clients. Other comorbid conditions such as digestive disorders and visual loss do not appear to occur more frequently in any individual RCG for this group of clients.

The presence of comorbid conditions over and above the condition for which the client is seeking rehabilitation can impact many aspects of the rehabilitation process. There can be delays due to tests or treatments for the comorbid conditions, additional pain, greater need for teaching and medical management of the condition, etc. Information on the prevalence of certain comorbid health conditions in various RCGs for the older client group may assist rehabilitation managers in determining resource requirements for a facility or unit depending on the types of clients most frequently admitted. These resources, human or technical, might be important for efficiently managing these conditions, so as to reduce their potential impact on a client's ability to progress in rehabilitation.

Older Clients Receiving Informal Support

Informal support, as defined in the National Rehabilitation Reporting System (NRS) describes the *unpaid* assistance provided to a client from any individual including family, friend or neighbour. Informal support excludes formal services, or services arranged by formal service providers such as volunteers. In 2003–2004, more than half (57%) of older clients indicated they believed they were receiving all of the informal support they required prior to their admission. A further 13% of clients indicated they received some of the support that was required. Three percent received no informal support at all, even though they thought it was required. Just over a quarter (27%) of older clients did not require any informal support, either because the clients were able to care for themselves or because they received all their required support from formal service providers.

Figure 4.6 shows some variation in the amount of required informal support received by older rehabilitation clients according to age. A slightly higher proportion of clients aged 85 years and over reported receiving *all* of the informal support they thought they required prior to admission (62% compared with 55% aged between 75 and 84 years). However, the proportion of clients reporting that *no* informal support was required was larger for the 75 to 84-age group (30%) than for the 85 and over age group (21%). *(Quick Stats, Table 36)*

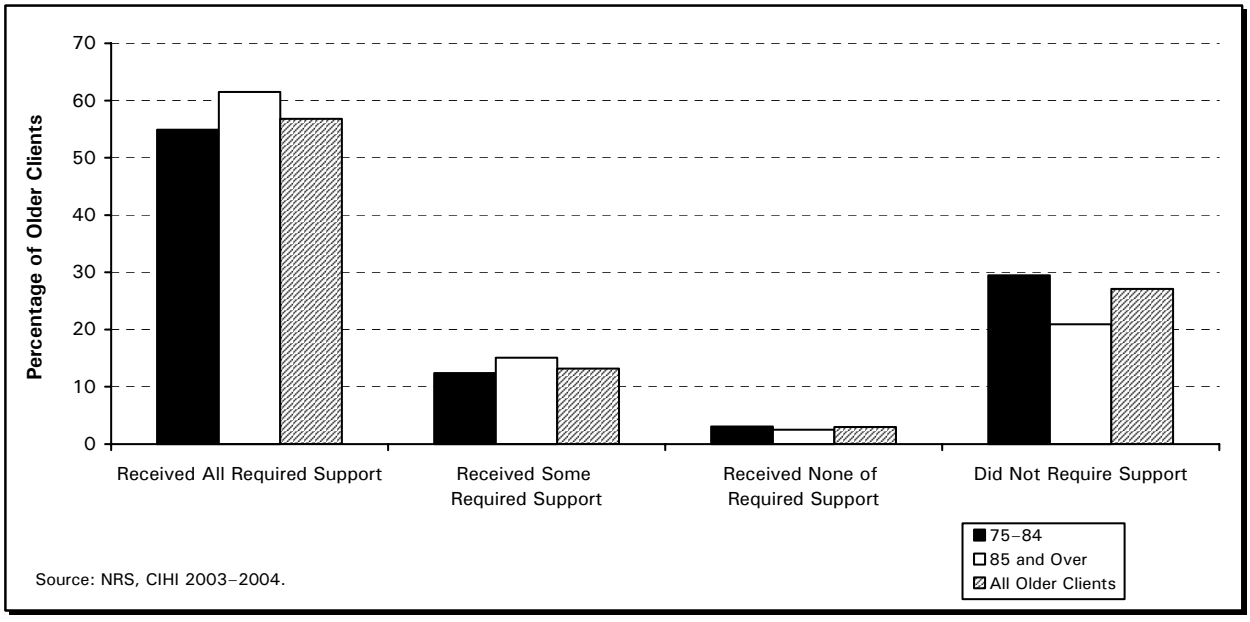

Figure 4.6 Older Inpatient Rehabilitation Clients Receiving Informal Support Prior to Admission, 2003–2004

The trend towards supported community living for older clients continues to evolve as regional health care planners and decision-makers seek to determine appropriate level of resources for providing support services to this population. Informal support is an important consideration in this planning, as many older clients rely on the assistance provided by family, friends and neighbours to maintain a certain level of independence in the community.

Summary

Clients over the age of 74 represent nearly half of all episodes in the NRS for 2003–2004. This chapter examined some of the basic socio-demographic and health characteristics of this group, in an attempt to better define them for those involved in the rehabilitation of older persons. The data revealed some differences in the characteristics of clients between 75 and 84 years and those aged 85 years and over. These differences may be used to inform decision-making processes and resource planning to assist in meeting this population's inpatient rehabilitation needs.

What We Know

- In 2003–2004, two-thirds of older clients that received rehabilitation services from participating NRS facilities were admitted with either orthopaedic or stroke conditions.
- Clients aged between 75 and 84 years made up the majority of all older clients across all Rehabilitation Client Groups.
- Orthopaedic, stroke, medically complex, debility, and cardiac conditions accounted for 86% of all NRS episodes for clients aged 75 years and over.
- The number of pre-existing comorbid health conditions seen on admission to rehabilitation tended to increase with age. More than half of older NRS clients were admitted with hypertension as a recorded comorbid condition.
- Clients in the debility RCG had the highest rate of reported depressive disorders as a pre-existing comorbid health condition.
- Clients aged 85 years and over had a higher reported proportion of receiving all the informal support required prior to admission as compared to their counterparts in the 75 to 84 age group.

What We Don't Know

- The nature and extent of the impact of specific comorbid conditions in older clients on their ability to progress in rehabilitation.
- To what degree the informal assistance provided by the family and friends of older Canadians is offsetting the need for more formal services in the community.

Chapter 5. Facilities Serving Older Inpatient Rehabilitation Clients

The focus of this chapter is a look at some of the characteristics of the facilities that are participating in the National Rehabilitation Reporting System (NRS) that are providing rehabilitation services to older clients. As discussed in Chapter 1, older NRS clients—for the purposes of this report—are those over the age of 74 years where complete admission and discharge NRS assessments were received in 2003–2004. The rehabilitation facilities discussed here are facilities that were participating in the NRS and providing services to older inpatient rehabilitation clients during the 2003–2004 fiscal year. These facilities are analyzed here based on their type and geographic location. Information is also presented on the various rehabilitation professionals that planned and implemented the rehabilitation programs for this older client group. As with Chapter 4, much of the analysis in this chapter looks at older clients categorized into two age groups: 75 to 84 and 85 and over. The goal is to shed light on the specific needs of the older population and link those needs to what is known and what is not known about the availability of inpatient rehabilitation resources.

Facilities Serving Older Clients

The NRS contains data from inpatient rehabilitation facilities that are designated into two different types: Specialty and General. Refer to the "Facility Type" section in Chapter 2 for a review of these definitions. As mentioned in that chapter, the "Facility Type" classification is intended to facilitate comparative reporting for participating facilities. Chapter 2 data relating to facility type contained information on *all* clients who received inpatient rehabilitation services from the participating facilities in 2003–2004, whereas this chapter will focus specifically on clients over 74 years of age.

More than half (52%) of the NRS population admitted to General facilities were older clients, whereas only 39% of all NRS clients admitted to Specialty rehabilitation facilities were over the age of 74. This is consistent with information presented in earlier sections of this report—further emphasizing an apparent relationship between age, Rehabilitation Client Group (RCG) and facility type.

As shown in Figure 5.1, of the 12,677 older clients who were admitted and discharged from participating facilities in 2003–2004, 71% were admitted to General rehabilitation facilities, and 29% were admitted to Specialty rehabilitation facilities.

	General Facilities		Specialty Facilities		All Facilities	
Facilities Submitting to NRS in 2003–2004	55	69.0%	24	31.0%	79	100.0%
Older Clients*	8,999	71.0%	3,678	29.0%	12,677	100.0%
All NRS Clients*	17,260	64.4%	9,540	35.6%	26,800	100.0%

*Refers to clients discharged in 2003–2004 with completed admission and discharge assessments.

Figure 5.1 Distribution of Older Clients Compared to All Clients Based on Facility Type in the National Rehabilitation Reporting System, 2003–2004

Figure 5.2 shows that there is little variation between the two older age groups when assessing the facility type to which they were admitted. Nearly three quarters (73%) of the clients 85 years and over were admitted to General rehabilitation facilities, and only 27% to Specialty facilities. A similar distribution is seen for the group of clients between the ages of 75 and 84—70% were admitted to General facilities and 30% to Specialty facilities.

Facility Type	75–84		85 and Over		Total Older NRS Clients	
	#	%	#	%	#	%
General	6,329	70.0	2,670	73.0	8,999	71.0
Specialty	2,690	30.0	988	27.0	3,678	29.0
All Facilities	9,019	100.0	3,658	100.0	12,677	100.0

Figure 5.2 Age and Facility Type Distribution for Older Client Groups in the National Rehabilitation Reporting System, 2003–2004

The NRS data provide a snapshot of the types of facilities that seem to be providing inpatient rehabilitation services predominately to the older population. Similar to inpatient rehabilitation clients as a whole, general facilities—those with rehabilitation beds in addition to other levels of health care—are providing services for the majority of the older NRS clients. The apparent admission patterns for older NRS clients provide important information for rehabilitation managers and health-care policy makers. As the Canadian population ages, it will become increasingly essential to be able to plan responsive rehabilitation programs and allocate potentially limited health resources to where they can be most appropriately used.

Demographics of NRS Facilities Serving Older Clients

In addition to collecting information on the types of facilities providing services to older rehabilitation clients, it can be useful for resource planning to look at whether these facilities are located in an urban or a rural environment. The challenges involved with staffing, transportation, and community care resources may vary between urban and rural regions, and it is important to have a sense of where the older population is currently having their inpatient rehabilitation needs addressed.

According to the 2001 Census Data Dictionary from Statistics Canada, *urban* regions contain a minimum population concentration of 1,000 and a population density of at least 400 per square kilometre.[7] All other regions outside urban areas are considered *rural*. These values are based on historical (1996) census population counts. For the purposes of this report, postal codes have been used to classify all NRS facilities as either serving predominately an urban or a rural population. For this analysis, it is assumed that the majority of NRS clients were admitted for inpatient rehabilitation services at the NRS facility closest to their living setting.

When interpreting the information presented below, it is important to note that the data do not necessarily reflect all of the urban and rural regions in Canada. Only those regions containing facilities that have participated in NRS data collection activities in the 2003–2004 fiscal year are included. Also, data on the size of the catchment areas served by these facilities are not included in this report.

		75–84		85 and Over		Total Older NRS Clients	
Location	# Facilities	# Clients	Clients/ Facility	# Clients	Clients/ Facility	# Clients	Clients/ Facility
Urban	73	8,607	118	3,454	47	12,061	165
Rural	6	412	69	204	34	616	103
All Locations	79	9,019	114	3,658	46	12,677	160

Figure 5.3 Older Clients Admitted to Urban and Rural Inpatient Rehabilitation Facilities in the National Rehabilitation Reporting System, 2003–2004

Figure 5.3 shows that during 2003–2004, the number of NRS facilities in urban areas far exceeded the number of NRS facilities in rural areas (73 in urban areas vs. 6 in rural areas). Consequently, more clients in the older age groups were admitted to urban facilities than to rural facilities during the same period. Urban centres, on average, appeared to serve a greater number of older clients per facility than rural centres—165 clients per facility for urban facilities compared to 103 for rural ones. The higher number of clients admitted to urban facilities may be due to a combination of factors: a higher population density in urban areas, fewer beds on average in rural facilities, some older clients in rural areas requiring transfer to urban areas for specialized rehabilitation not available in their community, etc.

[7] Statistics Canada: 2001 Census Data Dictionary, Geographic Units, 2001

Making decisions about resource allocation according to geographic location and population served requires data from several sources. Further population analysis and more information on the availability of rehabilitation resources in various regions is required to gain further insight into how well the inpatient rehabilitation needs of the older community are being met, regardless of geographic location.

Service Provider Types

In the NRS, information is collected on the various types of health professionals that provide care, education and treatment to rehabilitation clients to assist them in attaining their rehabilitation goals. These professionals are referred to as service providers. Each NRS discharge assessment contains information on the type and number of service providers involved in that client's care during rehabilitation, and the aggregate data is presented in this section. For the purposes of the NRS, particular provider types are coded on an assessment if the provider type has been identified as playing a role in assisting the client to reach their rehabilitation goals. The information on service provider type is specific to profession rather than role/job title on the rehabilitation team. The case manager role, for example, may be performed by a health professional with a background in social work or nursing, however, the NRS data capture the involvement of that person according to their professional designation of social worker or nurse rather than the multidisciplinary team role of case manager.

The 2003–2004 NRS data suggest that the service providers most often involved with inpatient rehabilitation clients were physicians, nurses, and physical and occupational therapists (Figure 5.4). These four professional groups were recorded in nearly all NRS client episodes (between 89 and 97%). Other reported groups such as rehabilitation assistants, social workers, pharmacists, dieticians, recreational therapists and speech language pathologists were involved relatively less frequently. It is not possible to ascertain from these data whether these provider types were recorded less often because the need was not there, or because the need existed but no such provider was available. *(Quick Stats, Table 37)*

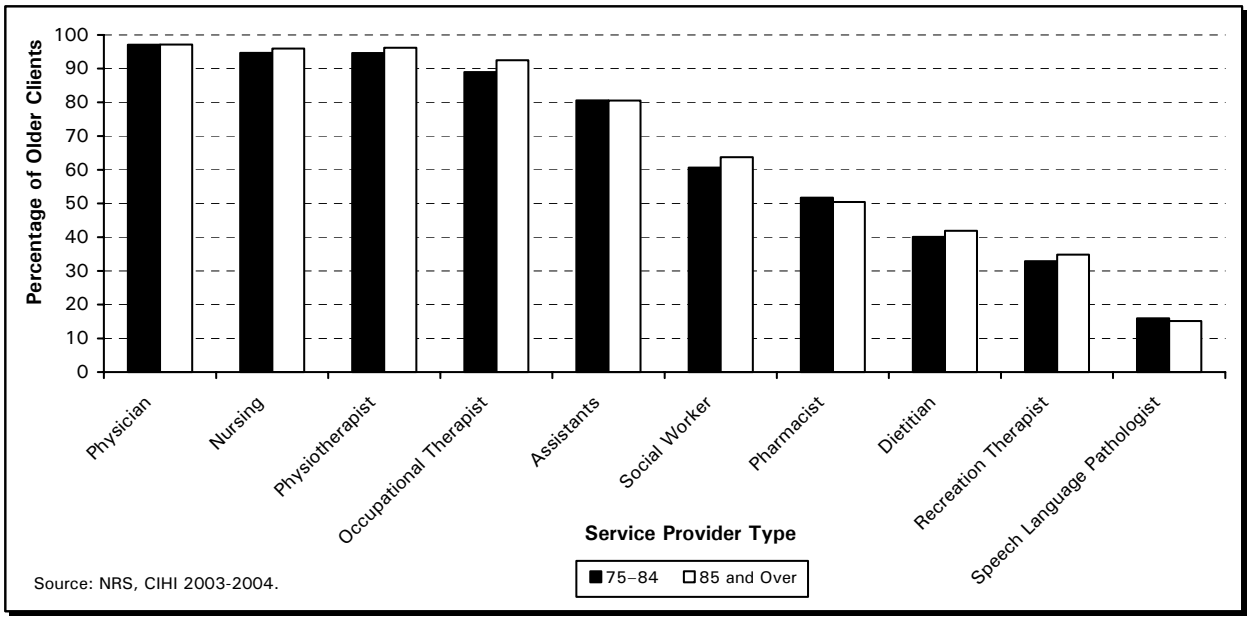

Figure 5.4 Provider Types Offering Services to Older Inpatient Rehabilitation Clients, 2003–2004

Figure 5.4 also shows only minor variations in the type and frequency of service provision between the two older age groups. Those clients aged 85 years and over had an equal or slightly higher rate of provider involvement for all groups except in the Pharmacist and Speech Language Pathologist groups.

Note that this list of provider types is not exhaustive. The NRS collects information on a wide range of health professional types that provide service to rehabilitation clients but only the 10 most frequently reported professional groups have been included in Figure 5.4. Also, some groups include more than one type of professional, which limits the extent to which specific conclusions regarding provider types can be drawn. The "Nursing" group, for example, includes registered nurses, nurse practitioners, nurse aides, etc.

Figure 5.5 presents information on the average number of service provider types per client in the older age groups for the five most frequently occurring RCGs. The data are presented according to both older age groups in the NRS (75–84 years of age and 85 years and over), as well as the 74 and under age group. The data suggest that the average number of service provider types per client did not vary significantly according to RCG in 2003–2004, nor by age. The limb amputation clients had, on average across age groups, the fewest number of service provider types involved in their rehabilitation—9 service provider types per client, while the debility group had the highest number—around 12 per client. The number of service provider types involved varied to a minor degree between the age groups. There appeared to be slightly more provider types per client with increasing age for the orthopaedic and amputation clients, and fewer for the medically complex, brain dysfunction and spinal cord dysfunction clients. However, the overall difference in these groups was, at most, 3 service provider types. As discussed in the previous section, it is not possible to assess potential reasons for variations across age groups using existing NRS data. *(Quick Stats, Table 38)*

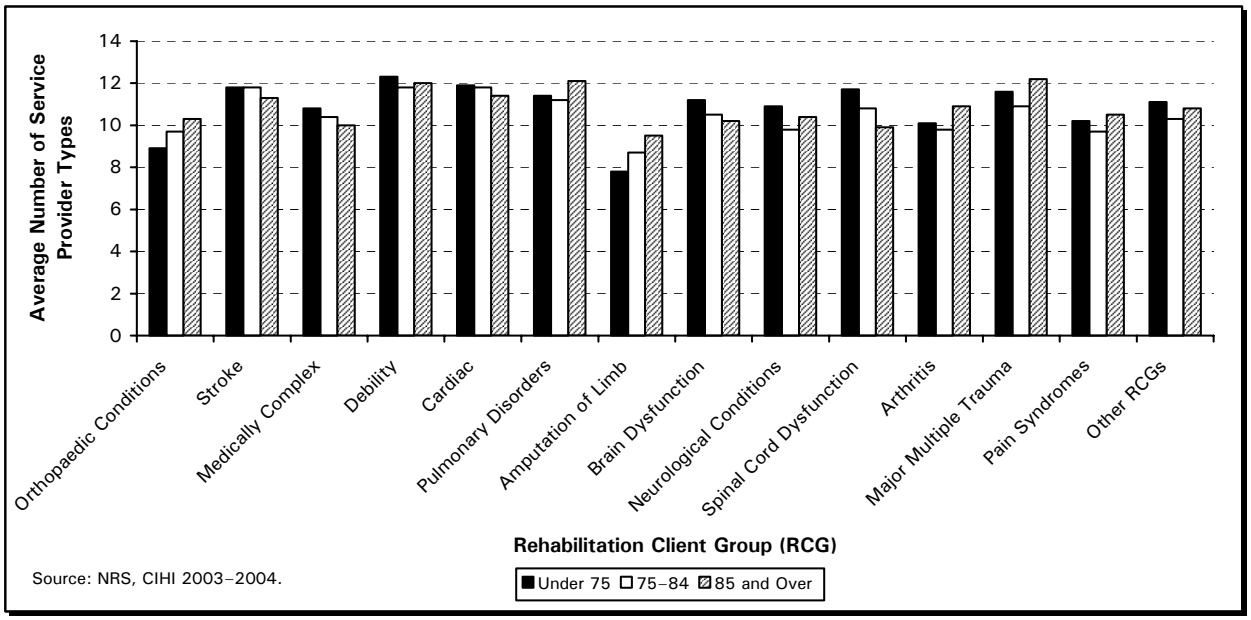

Figure 5.5 Average Number of Provider Types Offering Services to Older Inpatient Rehabilitation Clients by Rehabilitation Client Group, 2003–2004

The types and number of service providers involved in providing inpatient rehabilitation as reported in NRS data are only a part of the information that is needed to make human resource decisions at the health management and policy levels. Information on workload measurement per client must also be taken into consideration. Additional information is also required to answer the question: did the client not require the service, or was there simply no service provider available? Consideration of information from other sources regarding RCG-specific workload measurement and availability of health professionals would facilitate such analyses.

Summary

This chapter presented a brief overview of the types of NRS facilities and health professionals that were predominately involved in the inpatient rehabilitation process for those NRS clients over the age of 74 and some of the known information gaps in this area were discussed.

What We Know

- More than half of all NRS clients (52%) admitted to General inpatient rehabilitation facilities in 2003–2004 were over the age of 74.

- Nurses, physicians, and physical and occupational therapists were the health professional types most frequently recorded in the provision of inpatient rehabilitation services in 2003–2004.

- The average number of rehabilitation service provider types per client showed little variation between RCGs or age groups in the NRS, with somewhere between 9 and 12 different provider types working with each client, on average.

What We Don't Know

- The percentage of clients living in rural areas that are not able to have their inpatient rehabilitation needs met within their community.

- The extent to which requests for service provision in inpatient rehabilitation facilities are not met due to a shortage of appropriate professional staff (e.g. audiologist, speech language pathologist), and how this varies according to urban and rural regions.

- The appropriate numbers and types of service providers needed for each Rehabilitation Client Group in order to provide an optimal rehabilitation environment.

Chapter 6. Rehabilitation Outcomes in Older Clients

Chapters 4 and 5 reviewed some of the basic characteristics of the older inpatient rehabilitation population, as represented by data from the National Rehabilitation Reporting System (NRS). Information on the rehabilitation facilities and professionals from whom rehabilitation services were received was also presented. The data showed that orthopaedic conditions, stroke, medically complex conditions, debility, and cardiac conditions were the five largest Rehabilitation Client Groups (RCGs) in clients aged 75 years and over. This chapter will focus on some of the outcomes identified among older clients in these five RCGs, and provide some data on the sustainability of these outcomes after discharge. Whenever applicable and appropriate, analysis of sub-groups within these RCGs will be provided (see Appendix B for a basic description of the RCGs).

A main focus of inpatient rehabilitation is to maximize motor and cognitive functional abilities so that clients can carry on with their daily activities as independently as possible. There are a number of factors that can influence client outcomes in rehabilitation: the pre-admission health and functional status of clients, the type and intensity of services provided during rehabilitation stay, the length of stay in rehabilitation, to name a few. These factors can all to some degree affect functional outcome at the end of rehabilitation. Analysis of some of these factors, together with a look at the quantitative outcome measures provided by the Functional Independence Measure (or FIM™) instrument, discharge destinations and services referred to after rehabilitation, may provide further insight into a typical rehabilitation course for an older client and indicate opportunities to enhance outcomes.

Sub-Groups of Rehabilitation Client Groups

As discussed in Chapter 3, several of the Rehabilitation Client Groups (RCGs) are further divided into sub-groups in the NRS in order to compare similar sub-groupings of clients within a large RCG. In this section, distribution of the older rehabilitation clients by orthopaedic and stroke RCG sub-groups will be presented to provide more detailed information on the various client types within these RCGs. For the purposes of this chapter, the orthopaedic RCG is sub-divided into four groups: hip fracture, hip replacement, knee replacement, and other orthopaedic conditions (any orthopaedic condition which does not fall into the first three groups). The stroke RCG is sub-divided into three groups: left-sided hemiplegia, right-sided hemiplegia, and other stroke conditions (any stroke which does not fit into the first two groups). Hemiplegia refers to weakness or loss of sensation on one side of the body, and is a common consequence of stroke. As discussed in this report, the orthopaedic and stroke RCGs represent the largest number of episodes in the NRS, and clients in the various sub-groups within these RCGs are frequently admitted to rehabilitation with different physical and functional presentations. This chapter contains analyses by these particular sub-groups in order to assess any variations that may potentially impact rehabilitation outcomes.

During 2003–2004, 6,624 (52%) older clients were admitted to participating NRS facilities following rehabilitation for orthopaedic conditions such as fractures, joint replacements or other orthopaedic related diseases and conditions (back surgery, osteoporosis, scoliosis, etc). Thirty percent of these older orthopaedic clients were admitted to rehabilitation following a hip fracture, and a further 28% were admitted following a hip replacement. Just under a quarter of older orthopaedic clients (23%) were admitted to rehabilitation following replacement of one or both knees, and the remaining 19% of clients were admitted for other orthopaedic conditions.

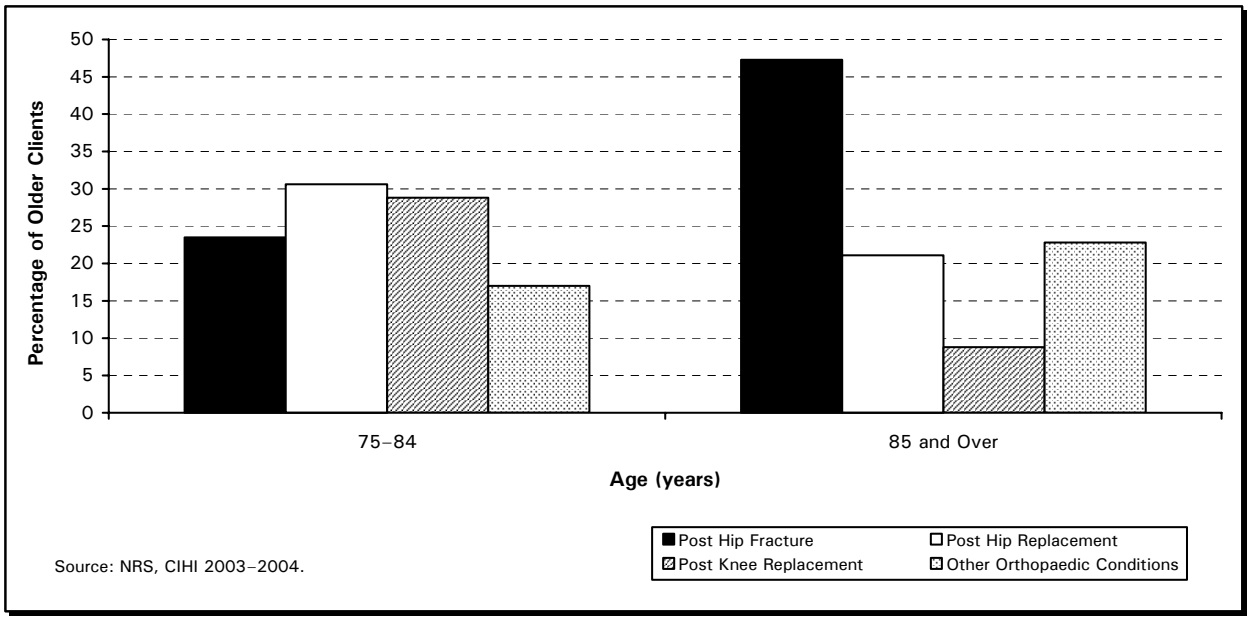

Figure 6.1 Distribution of Older Orthopaedic Inpatient Rehabilitation Clients by Age and Sub-Groups of Rehabilitation Client Group, 2003–2004

Figure 6.1 shows the orthopaedic sub-group distribution among older NRS clients according to age. The data show that orthopaedic clients aged between 75 and 84 years were more likely to receive rehabilitation services following hip replacement (31%) and knee replacement (29%), while those aged 85 years and over were more likely to be admitted to rehabilitation following hip fracture (47%). There appears to be a fairly large increase in the incidence of rehabilitation admissions following hip fracture between the 75 to 84 and 85 and over age groups. Studies have shown that the incidence of hip fracture rises exponentially with increasing age.[8, 9] The distribution of hip fracture clients by age for clients over 74 years in the NRS (figure not shown) appears consistent with these studies.

[8] Melton L.J. III. Epidemiology of hip fractures: implications of the exponential increase with age. *Bone* 1996;18(3):121–125.

[9] Papadimitropoulos EA, Coyte PC, Josse RG, Greenwood CE. Current and projected rates of hip fracture in Canada. *CMAJ* 1997;157:1357–63.

The distribution of the various orthopaedic sub-groups for the older NRS population reveals some variation according to age in the type of orthopaedic condition that led to the rehabilitation admission. The NRS data alone are not sufficient to interpret the reasons behind these variations. Other determinants, such as the decision criteria for joint-replacement surgery, the prevalence of causative factors such as degenerative arthritis or falls with age, and pre-admission mobility levels likely all impact to some degree on the admission for rehabilitation following joint replacement or hip fracture for older clients.

Unlike the older orthopaedic client group, there was little age-related variation in the three stroke sub-groups: left-hemiplegia, right-hemiplegia and other stroke (Figure not shown). For instance, 44% of stroke clients in the 75 to 84 age group and 42% in the 85 and over age group were admitted to rehabilitation with left-sided hemiplegia. The proportion of right-sided hemiplegia in the two age groups were 42% and 43%, respectively. Other stroke conditions accounted for 14% and 15% of older clients in the two age groups. The data suggest that age may not be related to the prevalence of one stroke sub-group over another in data submitted to the NRS. *(Quick Stats, Table 39)*

Length of Stay

Length of stay in the NRS is defined as the number of days between admission to and discharge from the rehabilitation unit (refer to the Length of Stay section in Chapter 2 for a review). It reflects the number of days the rehabilitation bed was occupied by a given client and provides an estimate of the period of time that rehabilitation services were provided. A client's length of stay may be influenced, in part, by the health condition for which they were admitted to rehabilitation, their age, and their functional status at the time of admission. Other factors such as staffing levels and the availability of post-rehabilitation services can also influence the length of time that a client spends in a rehabilitation setting. As discussed in Chapter 2, the median length of stay for all NRS clients discharged from participating facilities in 2003–2004 was 20 days.

Figure 6.2 displays the median length for stay for all inpatient rehabilitation clients by age for the five RCGs most prevalent in the older groups. The median length of stay of clients in all RCGs appears to be longest for the youngest age group (under 45) at 29 days. It then decreases for the 65 to 74 age group (16 days), and then increases again with the older NRS clients. A closer look at the NRS data showed that the higher median length of stay value in the younger age group was driven largely by the spinal cord dysfunction and brain dysfunction RCGs (50 days and 36 days respectively for the under 45 age group). *(Quick Stats, Table 40)*

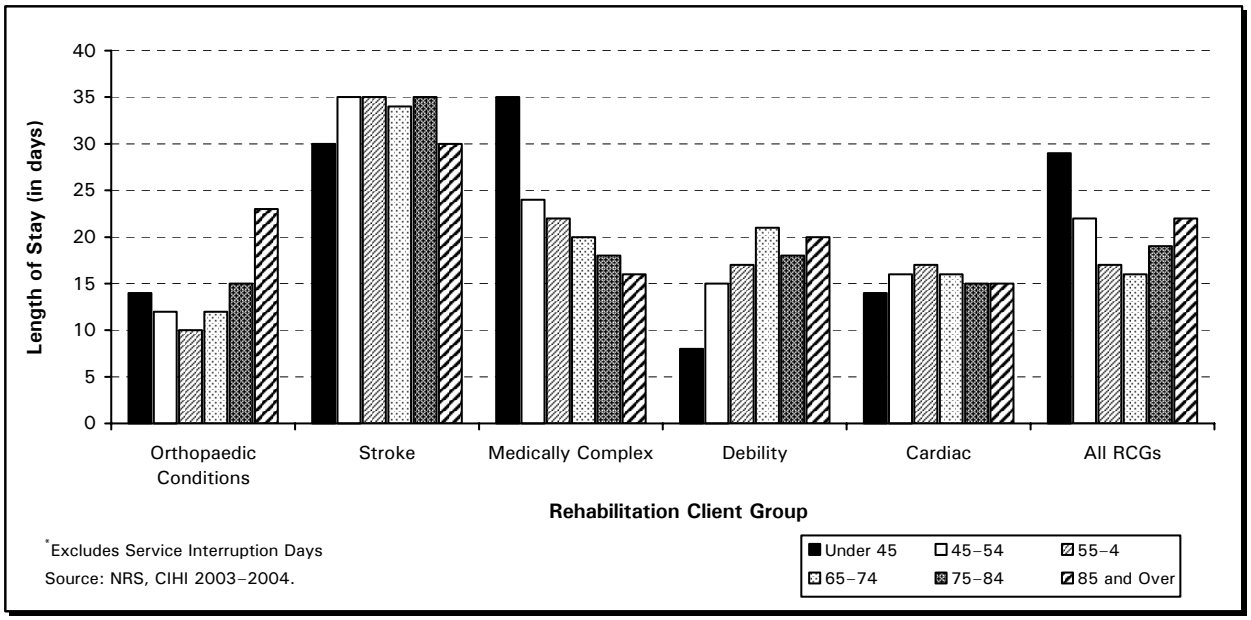

Figure 6.2 Median Length of Stay* of Inpatient Rehabilitation Clients by Age and Rehabilitation Client Group, 2003–2004

With respect to the five RCGs occurring most frequently in the older age groups, length of stay appeared to vary by age more for some RCGs than for others. The median length of stay for clients in the stroke and cardiac RCGs remained fairly consistent across all age groups: between 30 and 35 days in the stroke RCG and between 14 and 17 in the cardiac RCG. The length of stay for the debility RCG appeared to increase with increasing age. Orthopaedic clients appeared to have a median length of stay that was initially decreasing for the three youngest age groups, and then increasing for the 65 to 74, 75 to 84 and 85 and over age groups. The large increase in median length of stay for orthopaedic clients in the 85 and over age group is a reflection of the large proportion of hip fracture clients in this group—data in subsequent sections of this chapter will show that older hip fracture clients had the longest median length of stay of all orthopaedic clients. *(Quick Stats, Table 40)*

The median length of stay for the medically complex clients appeared to decrease with age—from a high of 35 days for clients aged under 45 years to a low of 16 days for clients aged 85 years and over. A brief investigation into the long median length of stay for the under-45 age group revealed that a large segment of these younger clients had lengths of stay far above the median, raising the overall value. Further analysis involving the specific diagnoses leading to the medically complex RCG classification is required to further explore the decreasing trend in median length of stay with age for this RCG.

Total Function Score at Admission and Length of Stay

As mentioned earlier in this chapter, the functional ability of a client at the time of admission is one of the many factors that may, to some degree, affect the period of time the client spends in a rehabilitation bed. Whereas the previous section in this chapter discussed the length of stay by RCG, this section will present a comparison of the length of stay of older inpatient rehabilitation clients by admission Total Function Score and RCG (refer to Chapter 3 for a review of Total Function Scores). As in the previous section, the orthopaedic and stroke RCGs will further be broken down into sub-groups for a more detailed analysis.

Recall from Chapter 3 that the average admission Total Function Score for all inpatient rehabilitation clients was 85 out of a possible 126. During 2003–2004, the average admission Total Function Score for older NRS clients was 82. Out of the two older age groups, NRS clients over the age of 85 had a lower average Total Function Score at admission (77) across all RCGs and stayed longer at inpatient rehabilitation facilities (22 days) than those clients in the 75 to 84 age category (average admission Total Function Score was 83 and median length of stay was 19 days for this group).

Figure 6.3 shows the average admission Total Function Scores and median lengths of stay for the five most frequently occurring RCGs for older clients. The stroke clients in both older age groups had the lowest average admission Total Function Scores and the longest median lengths of stay out of the five RCGs. The average admission Total Function Score of these clients was 72 for the 75 to 84 age category and 68 for the 85 and over age category, with median lengths of stay of 35 and 30 days, respectively. It is interesting to note that the younger of the two older age groups (75 to 84 years) in the stroke RCG had a longer median length of stay than the 85 and over age group, despite having a slightly higher average admission Total Function Score. This can also be seen in the medically complex RCG, where the median length of stay for the 75 to 84 age group is also longer, despite a higher average admission Total Function Score.

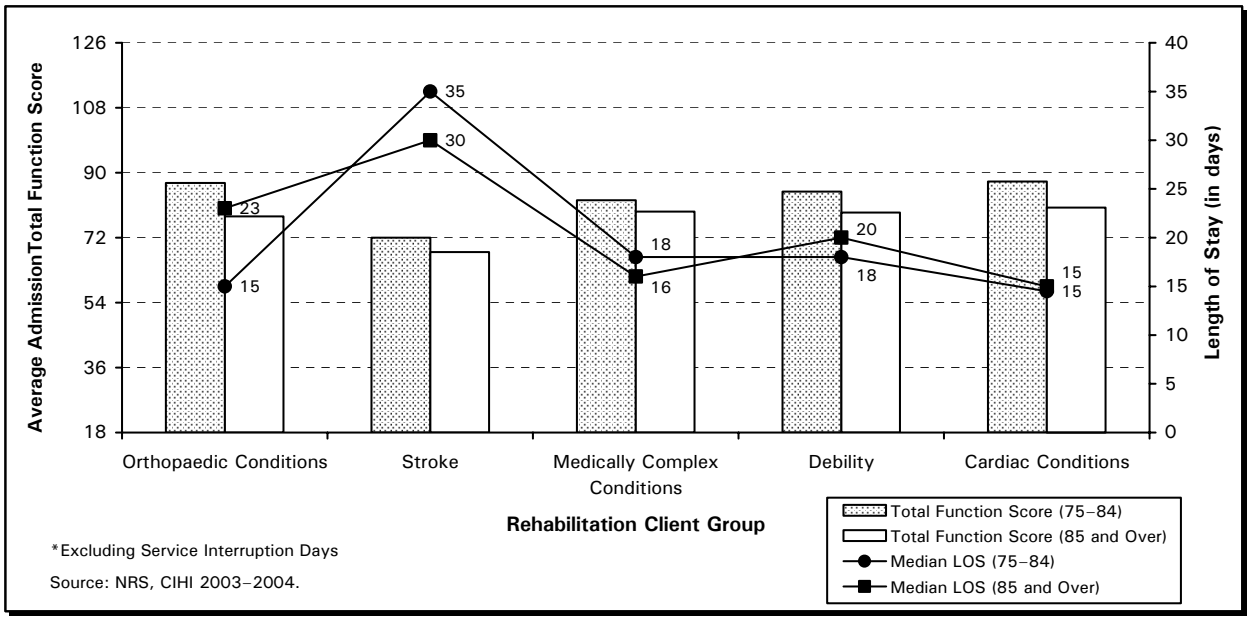

Figure 6.3 Average Admission Total Function Score and Median Length of Stay* (LOS) of Older Inpatient Rehabilitation Clients by Rehabilitation Client Group, 2003–2004

The remaining three RCGs (orthopaedic, debility and cardiac) depict the 85 and over age group as having lower average admission Total Function Scores and equal or higher median lengths of stay than the 75 to 84 age group. The orthopaedic and cardiac RCGs showed similar differences in admission Total Function Scores between the age groups. However, the orthopaedic clients in the 85 and over age group had a much longer median length of stay than those in the 75 to 84 age group, whereas both age groups in the cardiac RCG had identical median lengths of stay. *(Quick Stats, Table 41)*

As mentioned previously, there are many factors that can affect length of stay of individual rehabilitation clients. This analysis of older age groups and length of stay by RCG appears to suggest that admission Total Function Score alone cannot necessarily predict length of stay.

Admission Total Function Score and Length of Stay by Sub-Groups of Rehabilitation Client Group

Figures 6.4 and 6.5 describe the average admission Total Function Scores and median lengths of stay for older clients in the sub-groups of orthopaedic and stroke RCGs introduced earlier in this chapter. Figure 6.4 shows that older clients in the knee replacement group had a higher average Total Function Score at admission and a shorter median length of stay compared to older clients in the hip replacement group. In addition, the older NRS clients admitted to rehabilitation following hip fracture had the lowest average admission Total Function Score and the longest median length of stay of the three orthopaedic groups presented. The average admission Total Function Scores of hip fracture clients in the 75 to 84 and the 85 and over age groups were 80 and 74, respectively. The median lengths of stay for these clients were 23 and 27 days, respectively.

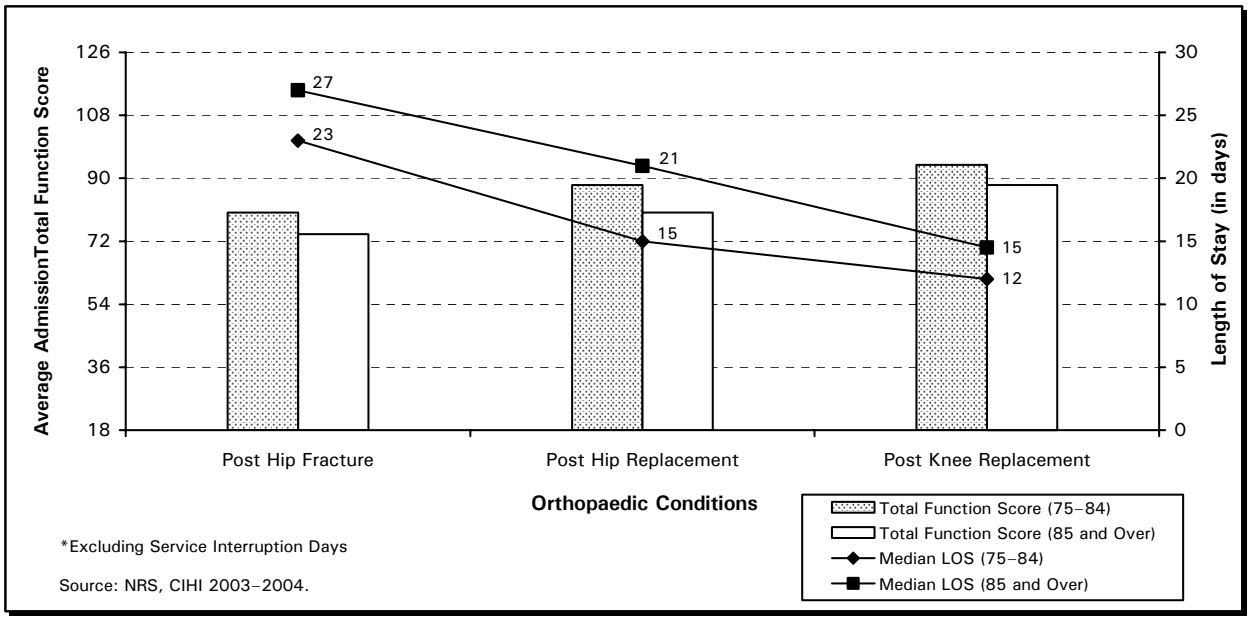

Figure 6.4 Average Admission Total Function Score and Median Length of Stay* (LOS) of Older Orthopaedic Inpatient Rehabilitation Clients by Sub-Groups of Rehabilitation Client Group, 2003–2004

Figure 6.5 describes the average admission Total Function scores and lengths of stay for the two major stroke sub-groups: left and right-sided hemiplegia. Examination of the average admission Total Function Scores of older clients within the sub-groups showed that there was little difference in their Total Function Scores at admission. For example, the average admission Total Function Score of left-sided hemiplegia and right-sided hemiplegia clients aged between 75 and 84 years was 70 in each case. The median length of stay between clients in the two age groups varied more in the left-sided hemiplegia sub-group than the right-sided hemiplegia sub-group. Clients with left-sided hemiplegia had a median length of stay of 37 days for the 75 to 84 age group and 30 days for the 85 and over age group. The median length of stay of those with right-sided hemiplegia in the two age groups was similar: 35 days for the 75 to 84 age group and 33 days for the 85 and over age group. These data are consistent with the length of stay data for the stroke RCG as a whole—where the 85 and over age category had a shorter median length of stay than stroke clients in the 75 to 84 age category. *(Quick Stats, Table 41)*

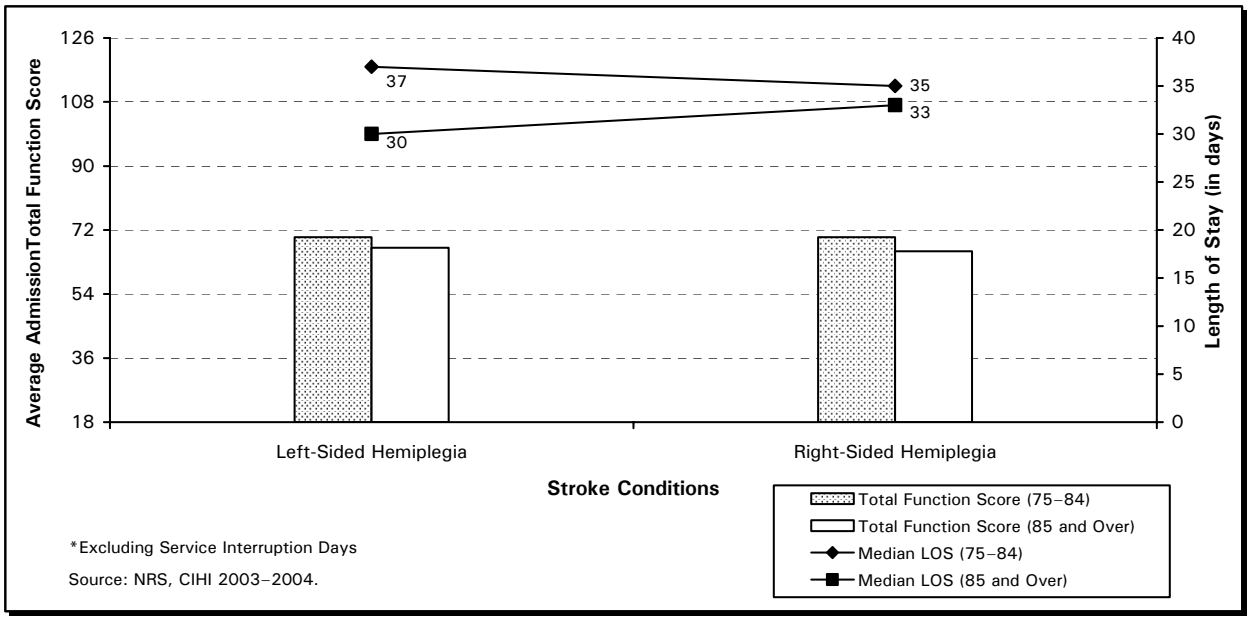

Figure 6.5 Average Admission Total Function Score and Median Length of Stay* (LOS) of Older Stroke Inpatient Rehabilitation Clients by Sub-Groups of Rehabilitation Client Group, 2003–2004

Change in Total Function Score From Admission to Discharge

Chapter 3 discussed the change in Total Function Score from admission to discharge for all inpatient rehabilitation clients who were discharged from participating NRS facilities during 2003–2004 and for whom data were collected using the FIM™ instrument. This section will focus on the change in Total Function Score of older inpatient rehabilitation clients from admission to discharge along with data on length of stay. As with previous sections, this section presents the median values as a reference for length of stay, rather than the average. The median lengths of stay are not represented in the figures; however, they are referenced in the corresponding tables.

Admission and discharge Total Function Scores were available for 95% of older inpatient rehabilitation clients in 2003–2004. Overall, the average Total Function Score for all older clients increased from 82 at admission to 101 at discharge for an average change of 18 points. Older orthopaedic and stroke clients had the largest changes in Total Function Score of approximately 20 points: from 85 to 105 in orthopaedic clients and from 72 to 91 in stroke clients. The median lengths of stay for the older orthopaedic and stroke clients were 17 and 34 days, respectively. Note that the stroke clients had the lowest average admission Total Function Score of the five most frequently occurring RCGs for the older NRS population. The older debility, medically complex and cardiac clients had relatively smaller changes in Total Function Scores from admission to discharge. The debility clients had an average score increase of 12 points and the medically complex clients had an average increase of 16 points. These clients had median lengths of stay of 20 and 17 days, respectively. Older cardiac clients had an average Total Function Score increase of 15 points over a median length of stay of 15 days. *(Quick Stats, Table 42)*

Figure 6.6 displays the average change in Total Function Score for the two older age groups from admission to discharge for the five most frequently occurring RCGs. Across all RCGs, the average change in Total Function Score was 19 points (from 84 to 103) for clients aged between 75 and 84 years, and 18 points (from 77 to 96) for NRS clients aged 85 and over. Clients in these two age groups had a median length of stay in rehabilitation of 20 and 23 days, respectively. As the figure shows, clients with orthopaedic and stroke conditions in both age groups had the largest change in Total Function Score from admission to discharge when compared to the clients in the other three RCGs. Orthopaedic clients aged between 75 and 84 years and 85 years and over had a median length of stay of 15 and 23 days, respectively. The comparative figures for clients in the stroke RCG were 35 and 30 days. Again, note that the changes in Total Function Score for orthopaedic and stroke clients were similar for both older age groups, but there were noteworthy differences in median lengths of stay.

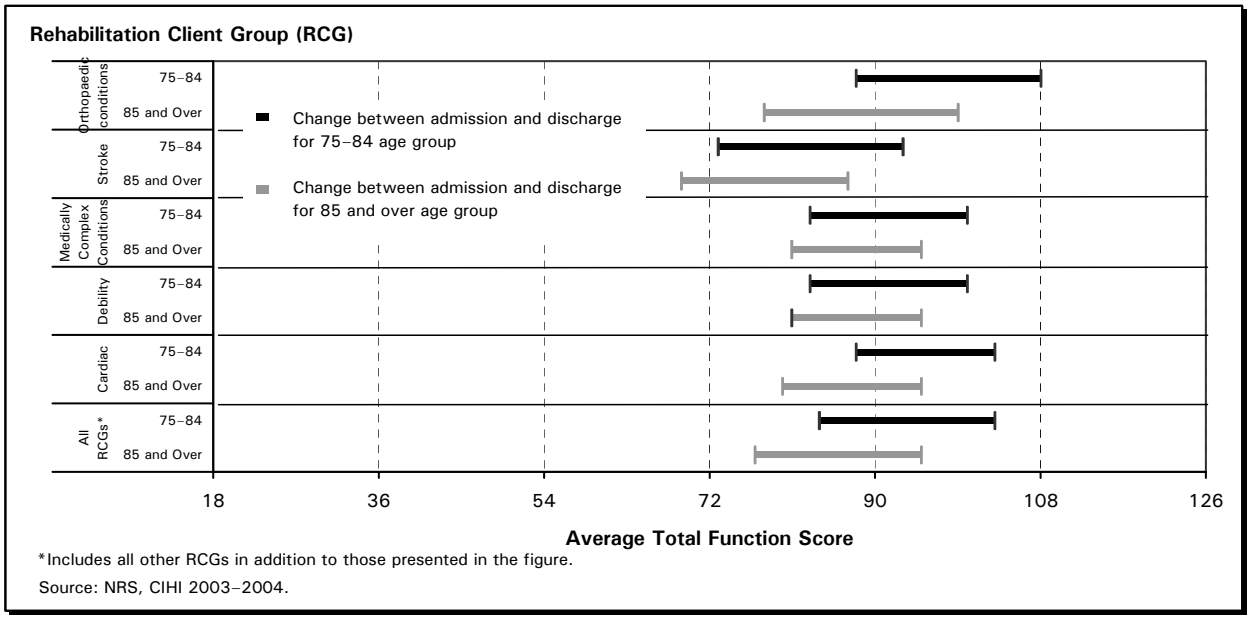

Figure 6.6 Change in Average Total Function Score From Admission to Discharge of Older Inpatient Rehabilitation Clients by Age and Rehabilitation Client Group, 2003–2004

Figures 6.7 and 6.8 display the change in Total Function Scores for older clients from admission to discharge within the sub-groups of orthopaedic and stroke RCGs. Figure 6.7 (the orthopaedic sub-groups) shows that the average Total Function Score changes for the two older age groups were similar across all orthopaedic sub-groups: between 19 and 21 points. Clients aged 85 years and over tended to start with lower admission Total Function Scores, particularly in the hip fracture and hip replacement groups, as compared to those aged 75 to 84 years. Figure 6.8 shows the change in Total Function Scores from admission to discharge for clients in the stroke RCG sub-groups, where overall change in Total Function Score regardless of age or stroke sub-group ranged between 15 and 20. Clients over the age of 84 years in the stroke sub-groups again tended to start with lower average admission Total Function Scores, and made slightly smaller gains in overall Total Function Score compared to their counterparts in the 75 to 84 age group. *(Quick Stats, Table 42)*

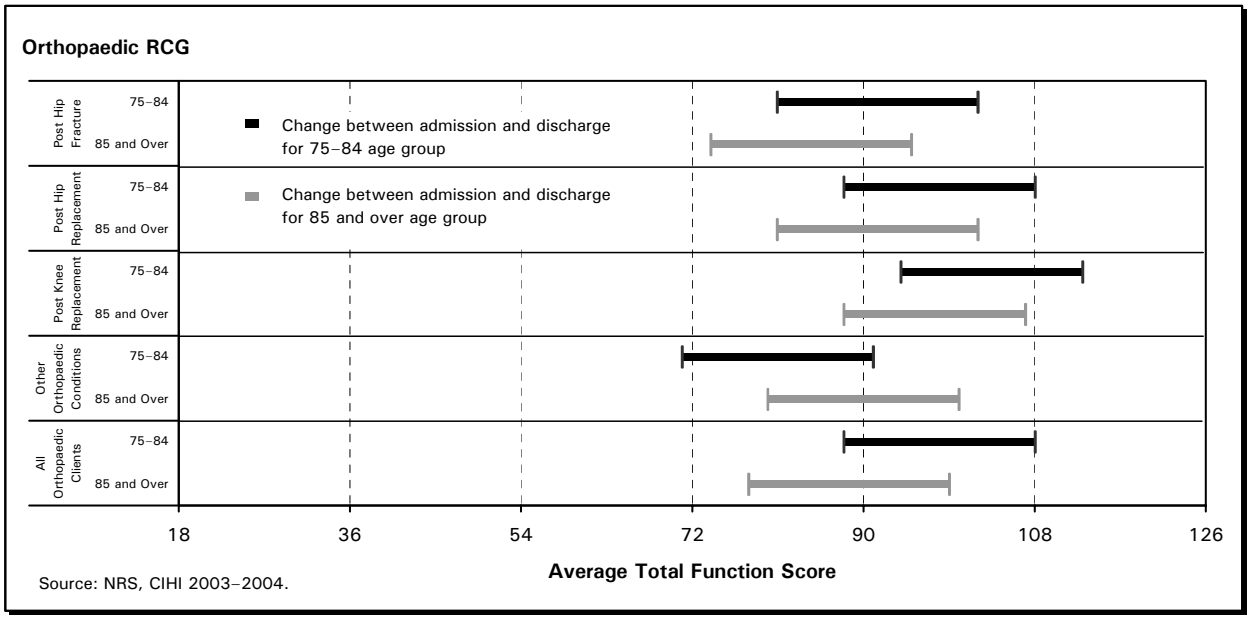

Figure 6.7 Change in Average Total Function Score of Older Orthopaedic Inpatient Rehabilitation Clients by Age and Sub-Groups of Rehabilitation Client Group, 2003–2004

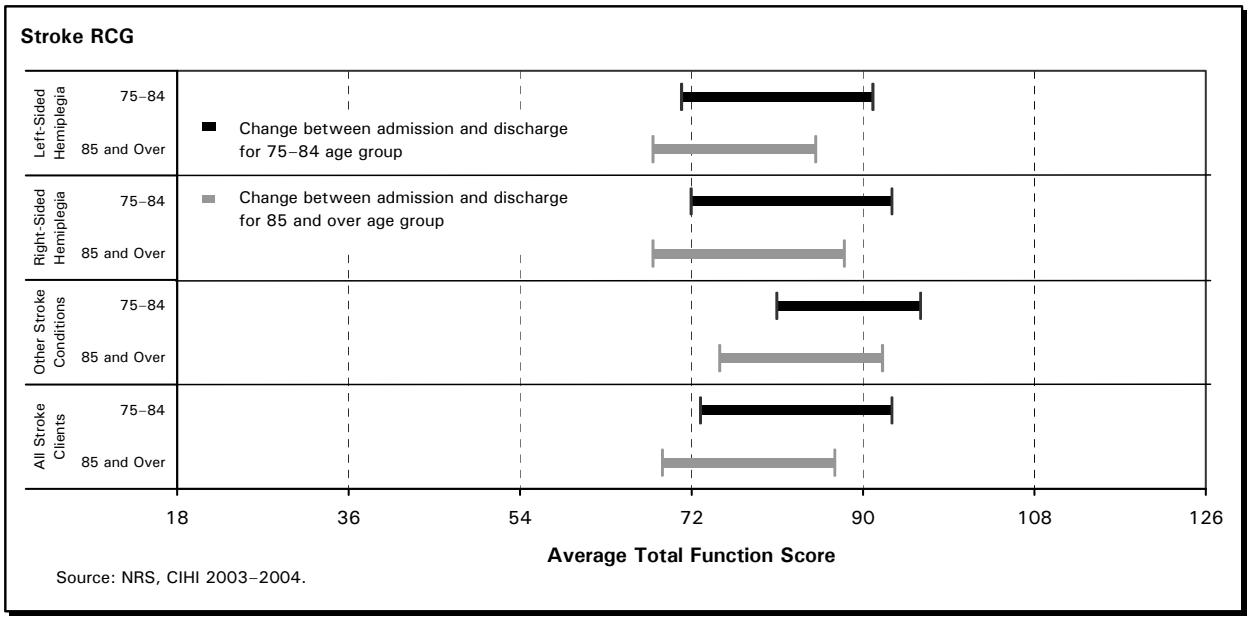

Figure 6.8 Change in Average Total Function Score of Older Stroke Inpatient Rehabilitation Clients by Age and Sub-Groups of Rehabilitation Client Group, 2003–2004

Change in Total Function Score From Discharge to Follow-up

This section of the report will provide a glimpse of the sustainability or maintenance of functional gains of older clients achieved during the rehabilitation stay, based on the changes in Total Function Scores from discharge to follow-up. As such, only those clients who had a follow-up assessment will be discussed here.

NRS follow-up assessments are typically conducted by participating facilities through telephone interviews or during follow-up visits to the facility, anywhere from 80 to 180 days after discharge from rehabilitation. The assessment is conducted directly with the clients or through a proxy, if necessary. Information on hospitalizations since discharge, level of perceived reintegration to the community, living arrangements, and living setting is gathered and a functional assessment is once again conducted using the FIM™ instrument. Completing follow-up assessments often requires additional time and resources from a facility, which is primarily why follow-up assessments remain optional for NRS at this time. Facilities can choose to collect follow-up data on some, all or none of their clients. So a degree of caution should be used when reviewing this section, as the follow-up episodes collected are not necessarily representative of all clients in the NRS. Follow-up data provides valuable information about the sustainability of the function gained in rehabilitation, and CIHI would like to acknowledge the facilities that collected follow-up information for the 2003–2004 reporting period. Analyses of these data contribute to an enhanced understanding of the value of the follow-up component for planning and management purposes. The data submitted by these facilities will be referred to in the following paragraphs.

In 2003–2004, nine facilities collected and submitted follow-up information to CIHI. Of the follow-up data submitted, 126 assessments related to older clients (about 1% of all NRS episodes for older clients). For these 126 clients, the average admission and discharge Total Function Scores were 88 and 106, respectively, and the average follow-up Total Function Score was 111, a four-point increase from discharge to follow-up for these 126 older clients. Note that due to rounding the absolute change in Total Function Score from discharge to follow-up is not the same as the average change in Total Function Score from discharge to follow-up as shown in the tables and figures.

Figure 6.9 compares the average change in Total Function Score among older inpatient rehabilitation clients for the orthopaedic, stroke and debility RCGs, from discharge to follow-up. The medically complex and cardiac RCGs are not included in this figure due to the small number of follow-up assessments submitted. The two older age groups have been combined for the same reason. The figure shows that clients who received inpatient rehabilitation services for orthopaedic, stroke and debility RCGs had similar increases in Total Function Score from discharge to follow-up: between 4 and 5 points.

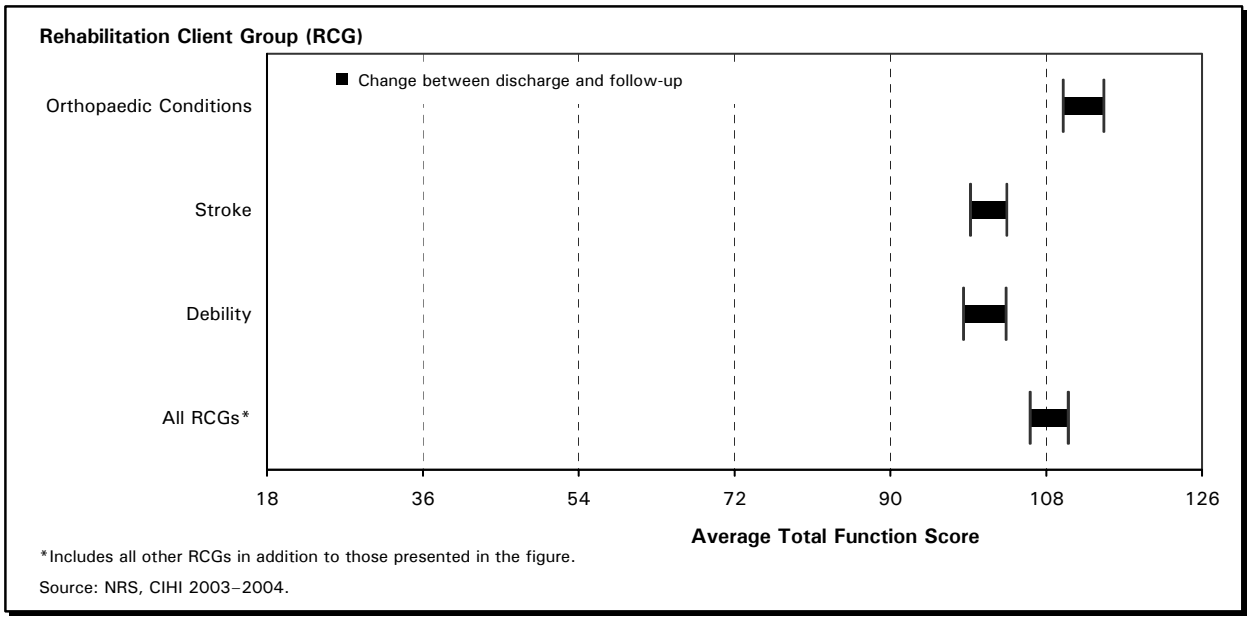

Figure 6.9 Change in Average Total Function Score From Discharge to Follow-up of Older Inpatient Rehabilitation Clients by Rehabilitation Client Group, 2003–2004

Figure 6.10 illustrates the change in Total Function Score from discharge to follow-up in orthopaedic sub-groups for the older NRS population. Clients who received rehabilitation services following a hip fracture or hip replacement had a larger increase in Total Function Scores from discharge to follow-up than those who underwent knee replacement: 4 points on average for clients with hip fractures and 5 points for hip replacement clients, as compared to 1 point for knee replacement clients. Recall from previous sections, however, that knee replacements clients had the highest admission, discharge and follow-up Total Function Scores among the orthopaedic sub-groups.

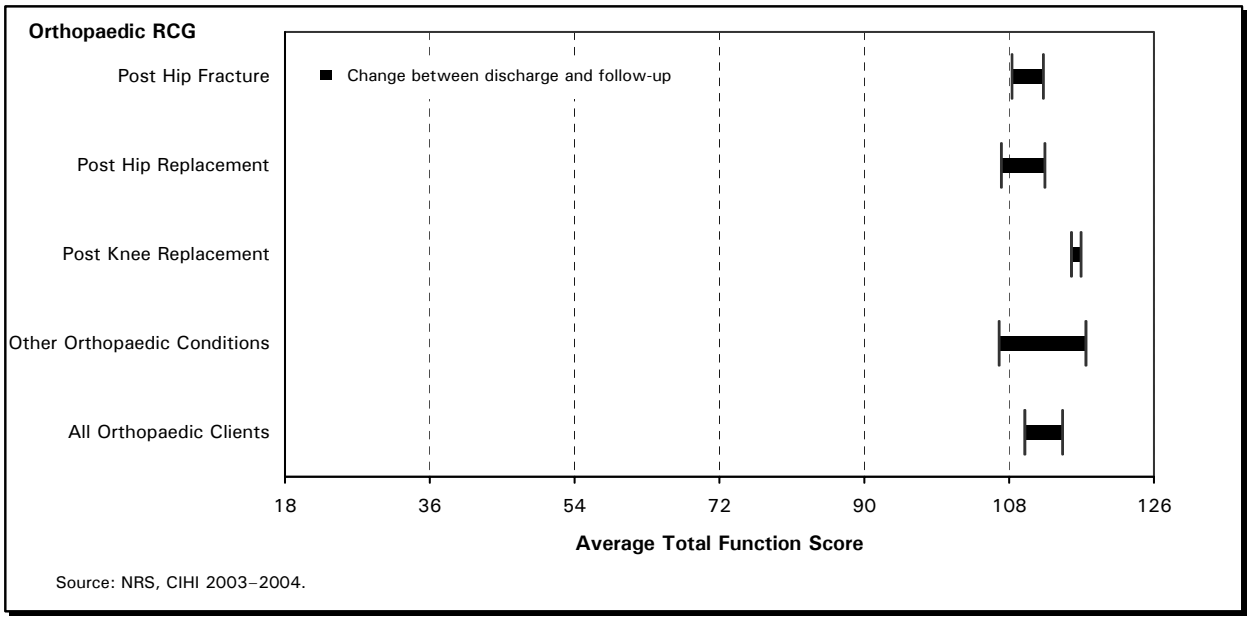

Figure 6.10 Change in Average Total Function Score From Discharge to Follow-up of Older Orthopaedic Inpatient Rehabilitation Clients by Rehabilitation Client Group, 2003–2004

Figure 6.11 provides follow-up information on clients in the stroke sub-groups. Older clients who received rehabilitation services following left-sided or right-sided hemiplegia had similar increases in their Total Function Scores on follow-up: from 95 at discharge to 98 at follow-up (3 points) in left-sided hemiplegia clients and from 106 to 108 (2 points) in right-sided hemiplegia clients. Clients in the "other stroke" sub-group had the largest increase in Total Function Score at follow-up, 9 points. *(Quick Stats, Table 43)*

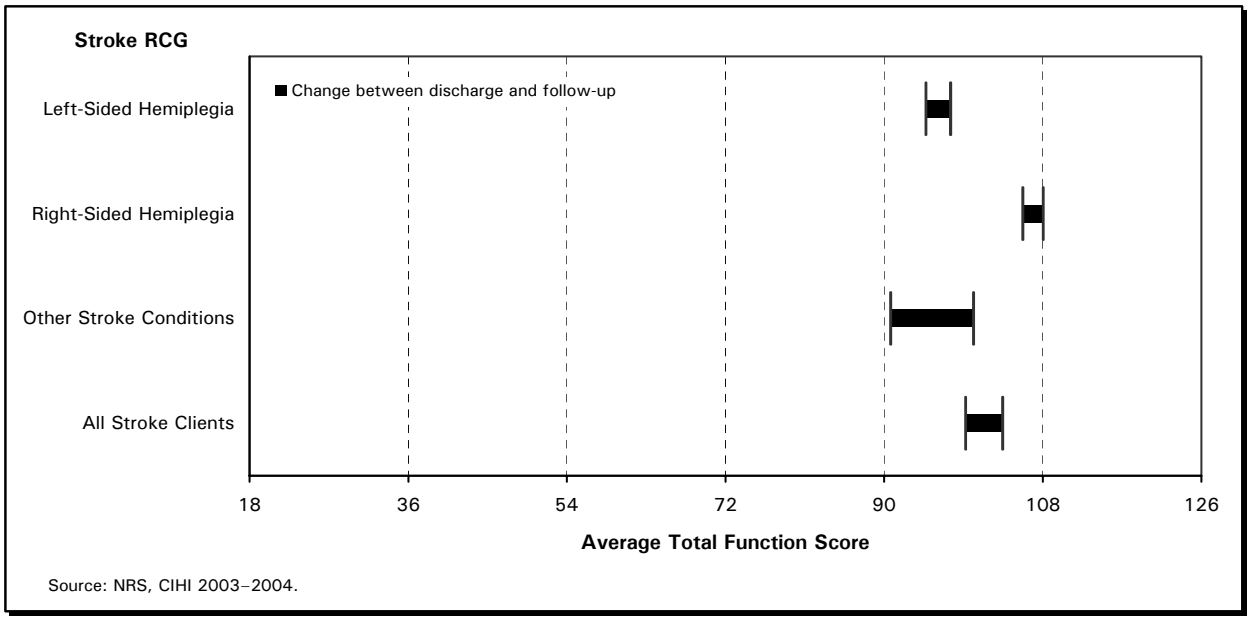

Figure 6.11 Change in Average Total Function Score From Discharge to Follow-up of Older Stroke Inpatient Rehabilitation Clients by Rehabilitation Client Group, 2003–2004

Due to the optional nature of the follow-up assessments, caution should be used when interpreting the data provided as it is based on a significantly smaller number of episodes. The data appear to suggest that some functional gain, as measured by the FIM™ instrument, continues to be made even after discharge from the rehabilitation setting in the older population. However, follow-up data needs to be collected on a larger proportion of clients before more extensive analyses can be conducted. The NRS is currently examining ways to facilitate easier collection of follow-up data in order to encourage more facilities to participate in the process.

Services Referred to at Discharge

This section will examine the types of services that all clients in the NRS were referred to upon discharge from the rehabilitation setting, and compare any differences in the referral patterns between age groups. Recall that some information regarding referred services was presented in Chapter 2 of this report.

Figure 6.12 shows the various types of services that inpatient rehabilitation clients were referred to on discharge, according to age distribution. Home care agencies represented the largest type of referral service for the NRS clients in both older age groups. A similar proportion of clients aged between 75 and 84 years and 85 years and over were referred to home care agencies (45% and 44%, respectively), while a smaller proportion of clients under the age of 75 were referred to these services (32%). Clients in this younger age group were more commonly referred to ambulatory care services and private medical practitioners. Referrals to residential care services and inpatient acute care services both appeared to increase with the older client groups. *(Quick Stats, Table 44)*

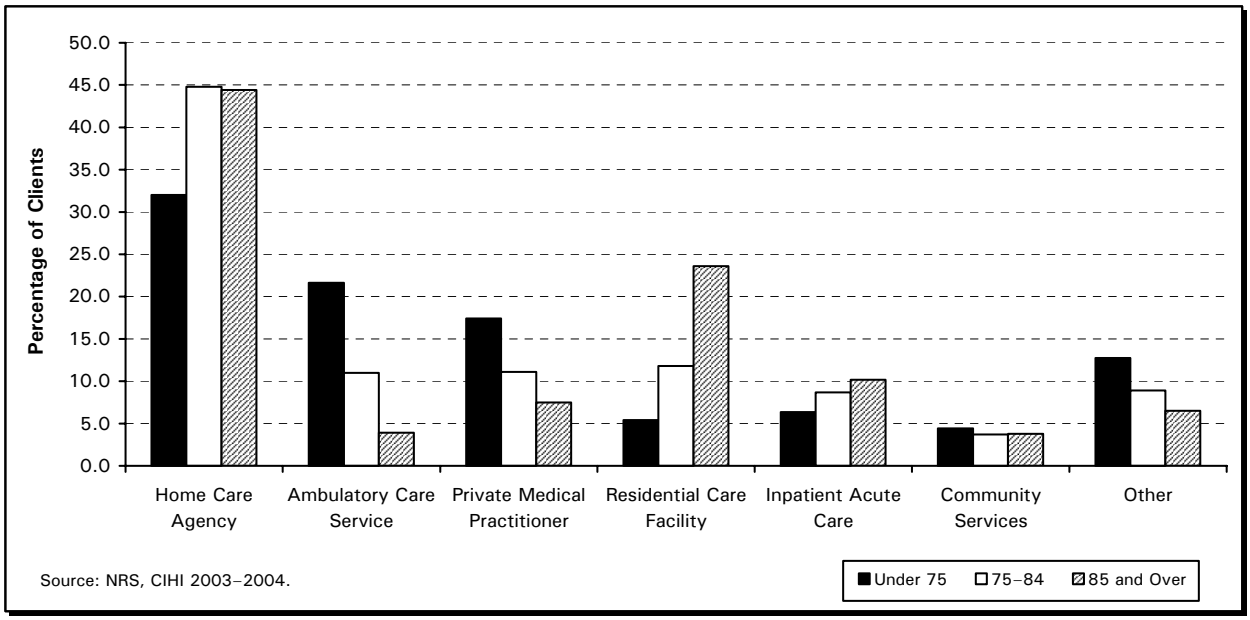

Figure 6.12 Referred to Services of Inpatient Rehabilitation Clients by Age Group, 2003–2004

Service referral patterns among clients leaving the rehabilitation setting can provide valuable information for those interested in the provision of health services across the continuum of care. Health care provision does not cease when a client is transferred from one point in the health system to another; but the types of care and the resources needed to provide that care can change. The availability of data across the continuum is vital to ensure that client needs are met following any transition in the health care system. The data in the NRS suggest some clear patterns in service referrals according to age—which may prove useful from a resource planning perspective as the health care system moves to more closely coordinate services between points of care.

Informal Support for Older Clients After Discharge

The concept of informal support was introduced in Chapter 2. The availability of an informal support network is particularly important for those older clients that may rely on their adult children, friends or neighbours to perform some of the daily tasks that have become difficult for them. Informal support (or lack thereof) can influence discharge destination after rehabilitation. Part of the discharge planning process involves establishing client needs that relate to daily function and establishing what resources are available to meet those needs. For someone in need, a lack of client support, whether formal or informal, paid or unpaid, often poses challenges for the multidisciplinary team and can make reintegration into the community after discharge more difficult. This section of the report discusses the levels of informal support older clients were expected to receive after their discharge from rehabilitation according to their discharge destination.

In the NRS, "discharge destination" describes the type of living environment that a client is discharged to following an inpatient rehabilitation stay. It is determined using a combination of information collected at discharge: the post-discharge living setting of the client, the services the client is referred to, and the reason for the client's discharge from the rehabilitation facility. The NRS discharge destination classifications are:

- Home with paid services;
- Home without paid services;
- Long-term care facility/residential care;
- Acute care facility; and
- Other community settings such as a boarding house, assisted living accommodation, and public shelter.

Clients referred to other rehabilitation facilities for further treatment, or those who withdrew from services or died during the rehabilitation stay are not classified into any of the above discharge destinations. These clients (3% of all older clients) are therefore not included in the analysis presented in the following section.

As mentioned in Chapter 2, information on informal support at discharge is based on client's needs, as determined by the client and the rehabilitation team, and the level of informal support that exists to meet these needs. For example, if a client is able to do light housekeeping tasks independently but requires assistance for vacuuming and laundry, those needs may be met at the informal level if a family member is able to help with those tasks. If no such resource is available, or all of the required needs cannot be fulfilled informally, then alternatives such as formal volunteer or home care services, paid services or assisted living may need to be considered.

Figure 6.13 shows the proportion of older clients discharged home after rehabilitation that expected to receive some, all, or none of the required informal support, according to age group and whether or not paid services were in place at home on discharge. Only those clients who were discharged home were considered for analysis in this section, as these were the clients suspected to be most likely in need of either a formal or an informal support network after discharge. Clients with discharge destinations such as long-term care and assisted living facilities are assumed to have received some sort of formal support and were not included in this analysis.

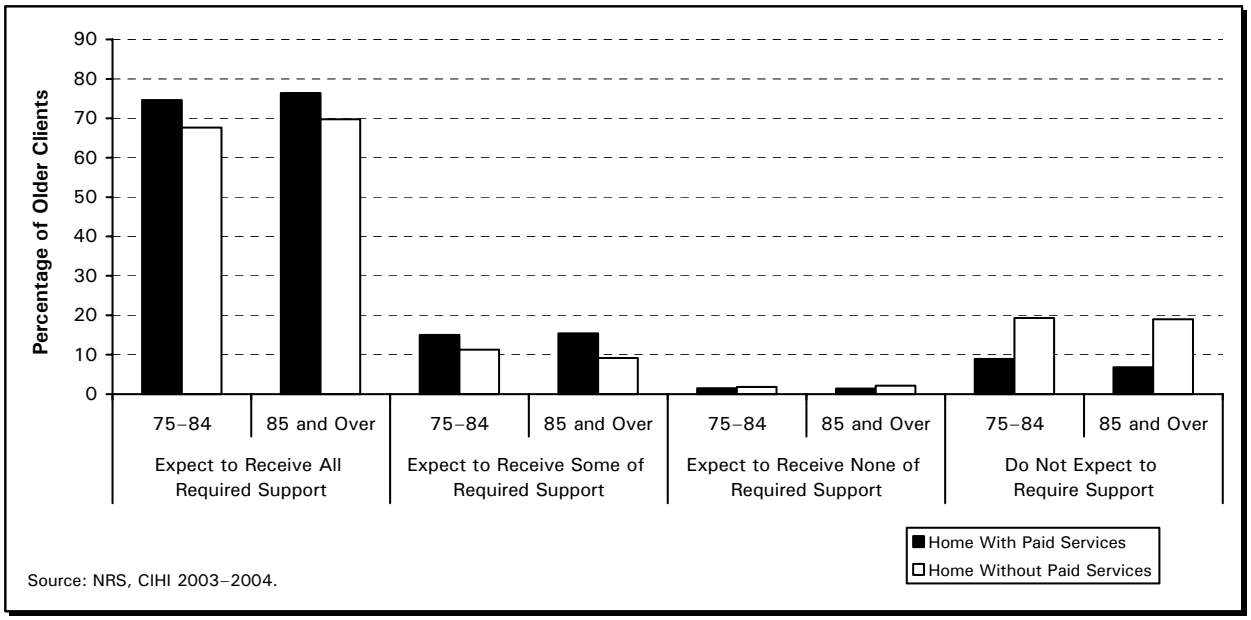

Figure 6.13 Expected Receipt of Informal Support after Discharge by Older Inpatient Rehabilitation Clients, 2003–2004

The NRS data show that during 2003–2004, the majority of all older clients (69%) reported that they were expecting to receive all of their informal support requirements following discharge. Only a small percentage (2%) reported that no required informal support was expected to be available to them. A further sixth (15%) were expecting not to require any kind of informal support. *(Quick Stats, Table 45)*

Figure 6.13 shows the informal support requirements of older clients who were discharged home (with and without paid services) by their age groups. Although some differences existed within age groups with respect to whether the clients expected to receive or not receive paid health services, no major differences were noted in the overall requirements and expectations for receipt of informal support in the older clients in the two age groups.

Overall, the majority of clients in the 75 to 84 and 85 and over age groups who were discharged home (with or without paid services) anticipated being able to receive all required informal support: between 68% and 76% of clients.

Differences were noted in the proportion of older clients who did not require informal support, depending on whether they were receiving paid health services or not. About a fifth (19% each) of clients in both age groups who were discharged home without paid services reported not requiring informal support on discharge. Conversely, only 7% to 9% of clients discharged home *with* paid services reported that they did not expect to require any informal support. Further analyses relating to these findings is necessary to investigate a possible relationship between informal support needs, the need for paid services at home, and client functional levels at discharge. *(Quick Stats, Table 45)*

Summary

This chapter highlighted some of the outcomes for older clients following inpatient rehabilitation, as well as the sustainability of those outcomes. The orthopaedic and stroke Rehabilitation Client Groups were further broken down for a more detailed analysis because of the large number of clients in these two client groups in the NRS.

What We Know

- Among older orthopaedic NRS clients in 2003–2004, those aged 85 years and over were more likely to be admitted to rehabilitation following hip fracture, while those aged between 75 and 84 years were more likely to be admitted following hip or knee replacement.

- Hip fracture clients over the age of 84 years had the lowest average admission Total Function Scores and longest median length of stay of all the older orthopaedic clients.

- Out of the five RCGs most commonly seen with older clients, the stroke client group had the lowest average admission Total Function Score and clients in this group appeared to stay the longest at rehabilitation facilities.

- Orthopaedic and stroke clients experienced the largest changes in Total Function Score from admission to discharge, as compared to clients in the medically complex, debility and cardiac RCGs.

- Of the small number of follow-up episodes examined, the majority of older NRS clients in this group appeared to at least maintain their functional gains following discharge from rehabilitation.

- Nearly half of all older NRS clients in 2003–2004 were referred to home care services on discharge from rehabilitation. Younger clients were more frequently referred to ambulatory care services or private practitioners.

- A large majority of older NRS clients expected to receive some or all of the informal support they required after their discharge.

What We Don't Know

- Whether the apparent sustained functional gains of older NRS clients seen in the small number of available follow-up episodes represents a true picture of all older inpatient rehabilitation clients.

- What other sources of information on older rehabilitation clients are most appropriate for use with NRS data in planning efficient and effective rehabilitation programs for this group.

Chapter 7. Discussion

Inpatient Rehabilitation in Canada, 2003–2004 is the second public report based on data from the National Rehabilitation Reporting System (NRS), developed and maintained by the Canadian Institute for Health Information (CIHI).

The report provides information on hospital-based physical rehabilitation services that occurred between April 2003 and March 2004 in participating rehabilitation units and freestanding rehabilitation facilities. It also specifically highlights some of the NRS data collected on older rehabilitation clients—those over the age of 74 who were admitted for rehabilitation to participating NRS facilities during the 2003–2004 reporting period.

The goal of this second report is to profile inpatient rehabilitation clients and shed some light on the scope and outcomes of inpatient rehabilitation services across the country, both for the broader rehabilitation population and, more specifically, for older inpatient rehabilitation clients. Although this report is based only on data from the 79 participating facilities across Canada that reported to the NRS from April 2003 to May 2004, it provides a snapshot of rehabilitation activity from which further exploration can continue. By facilitating the standard collection of data regarding inpatient rehabilitation services and the people who receive them, the NRS provides an opportunity for comparisons, discussion and further analysis in the field of rehabilitation.

For participating hospitals, this report provides a summary of information that is contained in the comparative reports they have already received from CIHI relating to activity between March 2003 and April 2004. The comparative reports, which are produced four times a year, provide hospital-specific and peer group information to facilitate planning and management decisions.

For provincial and territorial health departments and regional health authorities across the country, this report provides an overview of participating facilities' characteristics and selected outcomes. Although inpatient rehabilitation is only one component of the continuum of the physical rehabilitation sector, the report may provide another mechanism for considering future policy, funding or planning directions.

Finally, since *Inpatient Rehabilitation in Canada, 2003–2004* is one of the only publications that describes characteristics of hospital-based rehabilitation services and clients in Canada, the report may be of interest to rehabilitation clients and their families to gain a better understanding on how rehabilitation services information can support decisions and insight in this area of health care.

Measuring Function and Outcomes

A cornerstone of the NRS is the concept of human function, evidenced by the fact that the majority of information collected in the NRS relates to functional performance of daily tasks. As a reporting system, the NRS focuses on the role of rehabilitation in assisting individuals in achieving their maximum independence in daily living and maintaining that independence following discharge from the rehabilitation setting. This focus is supported by the range of clinical information on motor and cognitive functional status of rehabilitation clients and the impact of pain on their daily activities.

The functional data are primarily collected using the 18-item Functional Independence Measure (FIM™) instrument, which is a standardized assessment tool, developed in the United States by the Uniform Data System for Medical Rehabilitation (UDS$_{MR}$) and recognized both nationally and internationally. Together with other socio-demographic, administrative and health characteristic data, the NRS and this report provide some insight into the activity limitations experienced by clients and the extent to which rehabilitation programs assist in overcoming these limitations.

As familiarity with the NRS in hospitals and other organizations across the country grows, CIHI will explore new analytical themes and methods to present more specific information on functional status for the range of client groups seen in this reporting system. Where sufficient volumes of episodes exist in the NRS, further questions about functional status and related outcomes can be explored in subsequent annual reports, such as:

- Which comorbid conditions have the greatest impact on factors such as length of stay and functional outcomes across the various RCGs?
- What is the variation in sustainability of outcomes across the different RCGs and across the different age groups?
- How do the Rehabilitation Client Groups (RCGs) differ on the various sub-domains of the FIM™ instrument, including locomotion and social cognition?
- What trends or variation in functional status or clinical outcomes within a fiscal year or across several years are evident in the NRS data?
- How do specific interventions provided in rehabilitation programs impact on functional status and other outcome measures in the NRS?

Older Clients in the National Rehabilitation Reporting System

Clients over the age of 74 made up nearly half of all NRS episodes for the 2003–2004 reporting period. This significant presence in the database, as well as the overall ageing trend for the Canadian population, led to taking a closer look at the data available on this group. The various challenges and issues facing both older inpatient rehabilitation clients and the health professionals involved in their care were highlighted in the second half of this report. Some of these challenges are:

- Determining the appropriate level of inpatient rehabilitation services required to treat an increasing number of older clients who are predominately being admitted to rehabilitation following hip fractures and joint replacements, following a stroke or for medically complex conditions, general debility and cardiac conditions.
- Enhancing the understanding of how inpatient rehabilitation services link to acute care, home/community care and long-term care, so that the needs of older clients are met across the spectrum of health care.
- How to best combine NRS data with other sources of information on older rehabilitation clients to plan more efficient and effective admission, treatment and discharge rehabilitation processes for this group.

Towards Comprehensive Reporting

As a result of its partly voluntary nature, the NRS does not have comprehensive coverage of all inpatient rehabilitation services in Canada. Therefore, the information presented in this report is potentially limited in the extent to which the characteristics, indicators and outcomes can be assumed to be representative of all inpatient rehabilitation services.

In the future, as more hospitals implement the NRS to support their management and quality improvement activities, and as more provinces, territories and regions begin to use NRS data for planning and policy roles, the snapshot of rehabilitation services may become even clearer. A vision for the NRS is to have comprehensive reporting for all inpatient physical rehabilitation services across Canada: an objective that would certainly add to the findings released through the various NRS reporting activities.

By enhancing the information contained in the NRS through consultation with various hospital and government partners and through further development, future reports may address additional topics of interest to rehabilitation stakeholders. As well, incorporating additional sources of information, such as published research and recognized data sources, numerous other questions can be explored, including:

- How do outcomes vary across different groups of clients who receive services in different types of programs, such as geriatric rehabilitation and short-stay units?
- How do additional data about diagnoses inform the comparison of various groups of rehabilitation clients?
- Do limitations in the information contained in the NRS provide additional direction for the collection of other data elements relating to socio-demographic characteristics, functional status and related clinical outcomes?
- How can NRS information be combined with information from other sources, such as financial and health human resources information, to shed more light on the inpatient rehabilitation sector?
- How do inpatient rehabilitation services relate to other parts of the continuum of settings in which rehabilitation occurs, such as acute care, home care and continuing care?

Conclusion

As a reporting system, the NRS will continue to provide an opportunity for hospitals, policy-makers and other stakeholders to better understand client needs, measure activity, monitor outcomes and respond to evolving demands and opportunities in Canada's health care system.

As one component of the overall rehabilitation reporting activities at CIHI, subsequent annual versions of *Inpatient Rehabilitation in Canada* will investigate areas of relevance and importance for hospital-based physical rehabilitation by providing analysis based on input and feedback from across the country.

For more information, contact rehab@cihi.ca or visit the Web site of the National Rehabilitation Reporting System, www.cihi.ca/nrs.

Appendix A—NRS Glossary

Terms related to the National Rehabilitation Reporting System are taken from the Rehabilitation Minimum Data Set Manual, which is maintained and distributed by the Canadian Institute for Health Information. Refer to this manual for context-specific information relating to these terms.

The 18-item FIM™ instrument assessment, and the Rehabilitation Client Groups referenced herein are the property of Uniform Data System for Medical Rehabilitation, a division of UB Foundation Activities, Inc.

A

Activities of Daily Living (ADL)—Basic daily activities such as eating, grooming, bathing, transferring and dressing.

Adaptive Devices—Items used during the performance of everyday activities that improve function and compensate for physical, sensory or cognitive limitations.

Admission Assessment—The baseline client assessment that is completed within 72 hours of admission to the rehabilitation program.

Assessment—The grouping of administrative and clinical information that is collected for an inpatient rehabilitation client and is submitted to the NRS at admission, discharge and follow-up.

Average—For the purposes of the NRS, defined as the value obtained by adding all of the individual values (e.g. FIM™ scores, days waiting for admission) in a group and dividing that sum by the number of values in the group. Describes the arithmetic mean of a set of values.

B

Bathing (FIM™ Instrument)—Includes bathing (washing, rinsing and drying) the body from the neck down (excluding the neck and back); may be either a tub, shower or sponge/bed bath.

Bladder Management (FIM™ Instrument)—Includes intentional control of the urinary bladder and, if necessary, use of equipment or agents for bladder control. The functional goal of bladder management is to open the urinary sphincter only when that is needed and to keep it closed the rest of the time. This may require devices, drugs or assistance in some individuals.

Bowel Management (FIM™ Instrument)—Includes intentional control of bowel movements and, if necessary, use of equipment or agents for bowel control. The functional goal of bowel management is to open the anal sphincter only when that is needed and to keep it closed the rest of the time.

C

Cognitive Function Score (FIM™ Instrument)—The sum of the scores for the 5 cognitive elements on the FIM™ instrument. A higher Cognitive Function Score suggests a higher level of independent functioning in cognitive activities. See *Cognitive Subscale* below. Can be calculated on admission and on discharge.

Cognitive Subscale (FIM™ Instrument)—The last five items of the FIM™ Instrument: Comprehension, Expression, Social Interaction, Problem Solving and Memory.

Complete Independence—Refers to a situation where all of the tasks making up a particular activity on the FIM™ instrument are typically performed safely and without a helper. The activity is performed without modification, assistive devices, or aids, and within a reasonable amount of time. Results in a score of "7" on the FIM™ Instrument for that activity.

Comprehension (FIM™ Instrument)—Includes understanding of either auditory and/or visual communication (e.g. writing, sign language, gestures). Communication can involve simple and/or complex messages, with the scores reflected accordingly.

Continuing Rehabilitation—One of the available options for coding Admission Class in the NRS. This is part of a rehabilitation inpatient stay that began in another rehabilitation unit or facility. The client was admitted directly from a rehabilitation program in another unit or facility—with the *same* RCG (see *Rehabilitation Client Group*). Includes transfers to a rehabilitation unit within the same facility.

D

Date of Onset—The calendar date of onset of the main rehabilitation condition coded under Rehabilitation Client Group (see *Rehabilitation Client Group*) that precipitated the admission into rehabilitation. For acute conditions, the date of onset is the date of injury or surgery. For chronic condition (e.g. COPD), the date of onset is the date of the most recent exacerbation or functional loss that resulted in the admission to the inpatient rehabilitation unit.

Date Ready for Admission—The date on which the client meets criteria for admission to the rehabilitation facility and is considered ready to start a rehabilitation program. It does not refer to the date the client is put on a waiting list if this is done prior to when the client is clinically ready for rehabilitation.

Date Ready for Discharge—The calendar date that the client is considered ready for discharge from the rehabilitation program. On this date the client meets criteria for discharge according to the rehabilitation team and has met all or most of the rehabilitation goals set for them.

Days Waiting for Admission—The date on which the client is admitted to the rehabilitation facility minus the Date Ready for Admission, measured in days.

Discharge Assessment—The client assessment that is completed within 72 hours of discharge from the rehabilitation program.

Dressing—Lower Body (FIM™ Instrument)—Includes dressing and undressing below the waist, as well as applying and removing a prosthesis or orthosis when applicable. Includes all items of clothing that are typically worn. The client must use clothing that is appropriate to wear in public. Assessment starts in front of the closet or dresser drawers and includes reaching for items of clothing.

Dressing—Upper Body (FIM™ Instrument)—Includes dressing and undressing above the waist, as well as applying and removing a prosthesis or orthosis when applicable. Includes all items of clothing that are typically worn. The client must use clothing that is appropriate to wear in public. Assessment starts in front of the closet or dresser drawers and includes reaching for items of clothing.

E

Eating (FIM™ Instrument)—Includes using suitable utensils to scoop and bring food to the mouth, as well as chewing and swallowing, once the meal is presented in the customary manner on a table or tray. Includes all intake of nutrition over a 24-hour period, including tube feeding.

Episode—For the purposes of the NRS, an episode is an inpatient rehabilitation stay that is recorded by both an admission NRS assessment and a discharge NRS assessment. The analyses in the NRS reports are based on rehabilitation episodes. *Exception:* Clients recorded as having an (Un)planned Discharge are still considered to have had a rehabilitation episode in the NRS (see *(Un)planned Discharge*).

Expression (FIM™ Instrument)—Includes clear vocal and/or non-vocal expression of language. This item includes either intelligible speech or clear expression of language using writing or a communication device. Expression of intent can involve simple and/or complex ideas, with scores reflected accordingly.

F

Facility—Refers to the site where the rehabilitation beds are grouped and represents the level at which hospitals submit data for the NRS. Often, "facility" is synonymous with "hospital". For hospitals with more than one site or location, there may be more than one NRS facility within a hospital corporation.

Follow-up Assessment—The client assessment that is collected between 80 and 180 days after discharge from the rehabilitation program.

Functional Independence Measure (FIM™ Instrument)—The functional assessment instrument included in the Uniform Data Set for Medical Rehabilitation (UDS_{MR}). 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. The FIM™ Instrument is a measure of disability, and looks at the caregiver burden associated with the level of disability.

G

General Rehabilitation Facility—A facility that provides inpatient rehabilitation services in designated units, programs or beds within a general hospital that has multiple levels of care (i.e. rehabilitation, acute care, chronic care, emergency). Rehabilitation clients receive multi-dimensional (physical, cognitive, psycho-social) diagnostic, assessment, treatment and service planning interventions.

Grooming (FIM™ Instrument)—Includes a minimum of 4 activities: (1) oral care; (2) hair grooming (combing or brushing hair); (3) washing the hands; (4) washing the face, and may include a fifth activity, either shaving the face or applying make-up, where applicable. Washing includes rinsing and drying.

H

I

Informal Support—Describes the *unpaid* assistance provided to the client from any individual including family, friends or neighbors. Informal support *excludes* formal paid services or formal referred service providers such as volunteers.

Initial Rehabilitation—One of the available options for coding Admission Class in the NRS. Describes a client's first admission to an inpatient rehabilitation facility for a particular rehabilitation condition (see *Rehabilitation Client Group*).

Impact of Pain—A self-report item describing the impact of pain on a client's daily activities. This is one of two self-report data elements collected for the NRS.

J, K

L

Length of Stay (LOS)—The number of days between the date on which the client is admitted to the rehabilitation facility and the date on which the client is discharged from the rehabilitation facility. Any days on which the client could not participate in the rehabilitation program due to a health reason are excluded from the calculation (see *Service Interruption*).

Length of Stay (LOS) Efficiency—The change in Total Function Score (see *Total Function Score*) per day of client participation in the rehabilitation program. Calculated as Total Function Score divided by the LOS (see *Length of Stay*).

Locomotion: Stairs (FIM™ Instrument)—includes going up and down 12–14 stairs (one flight) indoors.

Locomotion: Walk/Wheelchair (FIM™ Instrument)—Includes walking, once in a standing position, or if using a wheelchair, moving forward once in a seated position and on a level surface.

M

Maximal Assistance—Measure of level of assistance required by a client in carrying out physical or cognitive activities as measured in the FIM™ Instrument. The subject expends between 25% and 49% of the effort to perform an activity assessed by the FIM™ Instrument (with the remainder being performed by the caregiver) resulting in a score of "2" for that activity.

Median—The middle value in a group when the values are arranged in an increasing order. If there is an even number of values, the median is the average of the middle two values. Results in an upper and lower half for the set of values. For example, in the series 2,5,7,9,12; "7" is the median. Not the same as Average (see *Average*).

Memory (FIM™ Instrument)—Memory in this context includes the ability to store and retrieve information, particularly verbal and visual. The functional evidence of memory includes: (1) recognizing people frequently encountered, (2) remembering daily routines and (3) executing requests without being reminded.

Minimal Contact Assistance—Measure of level of assistance required by a client in carrying out physical or cognitive activities as measured in the FIM™ Instrument. The subject requires no more help than is provided by a light touch, and expends 75% or more of the effort to perform an activity assessed by the FIM™ instrument, resulting in a score of "4" for that activity.

Mode—For the purposes of the NRS, mode refers to the specific method used to carry out a particular activity. The three elements of the FIM™ Instrument that require specifying a mode are: Locomotion—mode can be Walk or Wheelchair or Both; Comprehension—mode can be Auditory or Visual or Both; and Expression—mode can be Vocal or Non-Vocal or Both.

Moderate Assistance—Measure of level of assistance required by a client in carrying out physical or cognitive activities as measured in the FIM™ Instrument. The subject requires more help than touching, or expends half (50%) or more (but less than 75%) of the effort to perform an activity assessed by the FIM™ instrument (with the remainder being performed by the caregiver), resulting in a score of "3" for that activity.

Modified Independence—Measure of level of assistance required by a client in carrying out physical or cognitive activities as measured in the FIM™ Instrument. In the performance of an activity assessed by the FIM™ Instrument, the activity requires an assistive device; OR the activity takes more than reasonable time; OR there are safety (risk) considerations. This level is scored a "6".

Most Responsible Health Condition—The primary etiological diagnosis that describes the most significant condition leading to the client's rehabilitation stay. Where multiple conditions exist, it is the one health condition that is most related to the Rehabilitation Client Group and the condition that most of the resources are directed towards (see *Rehabilitation Client Group*).

Motor Function Score (FIM™ Instrument)—The sum of the scores for the 13 motor elements on the FIM™ Instrument. A higher Motor Function Score suggests a higher level of independent functioning in motor activities (see *Motor Subscale)*. This can be calculated on admission and on discharge (where applicable).

Motor Subscale (FIM™ Instrument)—The first thirteen items of the FIM™ instrument: Eating; Grooming; Bathing; Dressing—Upper Body; Dressing—Lower Body; Toileting; Bladder Management; Bowel Management; Transfers: Bed, Chair, Wheelchair; Transfers: Toilet; Transfers: Tub or Shower; Locomotion: Walk, Wheelchair; and Locomotion: Stairs.

N

National Rehabilitation Reporting System (NRS)—A primarily voluntary national health information system for adult inpatient rehabilitation services. The province of Ontario has mandated its use for all designated rehabilitation beds in that province. The NRS contains client data collected from participating adult inpatient rehabilitation facilities and programs across Canada. The NRS data elements contain information related to socio-demographic information, administrative data, health characteristics, activities and participation (e.g. ADL, communication, social interaction) and therapeutic interventions. These elements are used to estimate a variety of indicators including waiting times and client outcomes.

O

P

Pre-Hospital Living Setting—Residential environment where the client was living prior to his/her admission to hospital for rehabilitation. Also referred to as the Community Living Setting.

Provider Type(s)—Refers to the professional service provider(s) involved in delivering rehabilitation services to the client (see *Rehabilitation Intervention*).

Post-Hospital Living Setting—Residential environment where the client will be living following discharge from the hospital. It does not refer to another hospital or hospital unit if the client is transferred from the rehabilitation facility or unit. Also referred to as the Community Living Setting.

Private Practitioner—An independent professional to whom the client may be referred at time of discharge for related services following the rehabilitation episode; for example, a physician or a physiotherapist in a private clinic.

Problem Solving (FIM™ Instrument)—Includes skills related to solving problems of daily living and generally involves five steps: (1) recognizing that a problem is present; (2) making appropriate decisions; (3) initiating steps and readjusting to changing circumstances; (4) carrying out a sequence of events and; (5) evaluating the solution.

Q

R

Readmission—One of the available options for coding Admission Class in the NRS. The code used for a client admitted to an inpatient rehabilitation facility or unit where the current admission is related to a prior admission for the *same* rehabilitation condition (see *Rehabilitation Client Group*). For example, a client who received rehabilitation for a leg amputation returns to the facility a month later for further prosthetic training. There is no time limit for length of time since the previous admission.

Rehabilitation Client Group (RCG)—The condition that best describes the primary reason for the client's admission to the rehabilitation program. The rehabilitation team determines the RCG at the time of admission. The complete list of RCGs can be found in Appendix C of the *Rehabilitation Minimum Data Set Manual* produced and distributed by CIHI.

Rehabilitation Goals—The functional objectives set by the client in partnership with the rehabilitation team. These are determined shortly after admission to the rehabilitation facility and generally form the basis for activities that will be included in the rehabilitation program.

Rehabilitation Interventions—A set of activities that are provided to a client aimed at improving/maintaining the client's health status and minimizing the impact of impairments and disabilities on the client's quality of life.

S

Self-Care Activities—Describe basic activities necessary for daily *personal care*, including eating, grooming, bathing, dressing and toileting.

Service Interruption—Occurs when a client is unable to participate in the rehabilitation program due to a *health condition* that may or may not result in a transfer out of the rehabilitation bed or unit. Service Interruptions are generally coded only when the client misses more than one day of active rehabilitation and the condition is felt to impact on the client's progress in rehab. This does not include weekend passes to visit family at home or temporary bed closures.

Set Up (referred to when performing the FIM™ Instrument assessment)—Assistance with related preparation prior the subject performing an activity, or removal and disposal of equipment/materials after the subject performs an activity. Clients requiring set up to complete a FIM™ Instrument item cannot score higher than a "5" for that item.

Short Stay—One of the available options for coding Admission Class in the NRS. Refers to an inpatient rehabilitation stay lasting between 4 and 10 days. The client is admitted for a brief intervention (e.g. prosthetic adjustment), OR the rehabilitation stay lasts only between 4 and 10 days because of medical complications OR the client was discharged against medical advice.

Social Interaction (FIM™ Instrument)—Includes skills related to participating and co-operating with others in therapeutic and social situations. It represents how one deals with one's own needs together with the needs of others. Participation includes socializing with others or becoming involved in group activities. Co-operation includes working or collaborating with others and following cueing, coaxing and/or directions.

Specialty Rehabilitation Facility—A facility that provides comprehensive inpatient rehabilitation services or specialized rehabilitation programs. This is often a freestanding hospital, but can be a specialized unit within a larger acute or chronic-care facility. In addition to interventions provided in a General Rehabilitation Facility, clients in a Specialty Facility also have access to more comprehensive services such as surgical specialists, orthotics, prosthetics, etc.

Supervision—Measure of level of assistance required by the clients in their physical or cognitive activities. The caregiver must monitor, or provide cueing/coaxing to a subject during the performance of an activity for safety reasons. Supervision may be standby (close) or distant, but there is NO physical contact with the client. Clients requiring supervision or coaxing to complete a FIM™ Instrument item cannot score higher than a "5" for that item.

T

Toileting (FIM™ Instrument)—Includes three main tasks: (1) adjusting clothing before using toilet, commode or bedpan; (2) maintaining perineal hygiene; and (3) adjusting clothing after using toilet, commode or bedpan.

Total Assistance—Measure of level of assistance required by the clients in their physical or cognitive activities. The subject expends less than 25% of the effort to perform an activity assessed by the FIM™ instrument, resulting in a score of "1".

Total Function Score (FIM™ Instrument)—The sum of the scores for all 18 elements on the FIM™ Instrument; ranging from 18 to 126. A higher Total Function Score suggests a higher level of independent functioning in activities of daily living and communication.

Transfers: Bed, Chair/Wheelchair (FIM™ Instrument)—Includes all aspects of transferring to and from a bed, chair, and wheelchair (if client uses a wheelchair), or coming to or from a standing position (if walking is the typical mode of locomotion). Client moves from a supine to a standing position and vice versa.

Transfers: Toilet (FIM™ Instrument)—Includes getting on and off a toilet.

Transfers: Tub or Shower (FIM™ Instrument)—Includes getting into and out of a tub or shower stall. Includes positioning, standing, pivot, sitting or sliding transfer, and for tub transfers, also includes lifting legs over threshold of tub.

U

(Un)planned Discharge—One of the available options for coding Admission Class in the NRS. Refers to an inpatient rehabilitation stay lasting three days or less, including the day of admission. Includes planned and unplanned discharges. In these cases, the admission FIM™ Instrument is typically not completed, but can be included in the NRS assessment if complete.

V

Visual Cue—Any visible gesture, posture and/or facial expression that is used to aid in the performance of a task.

W, X, Y, Z

Appendix B—Rehabilitation Client Groups (RCGs)

The RCGs and selected definitions as referenced in this report are provided below. This is not an exhaustive list of RCG definitions available for coding in the National Rehabilitation Reporting System (NRS).

Definition of Rehabilitation Client Group (RCG): The health condition that best describes the primary reason for admission to the rehabilitation program. The appropriate Rehabilitation Client Group is determined at the time of admission by the rehabilitation team and can be modified at discharge if necessary.

Orthopaedic Conditions: Includes cases in which the major disorder is post-fracture of bone, post-arthroplasty (joint replacement) or other pathology relating to bone (excludes conditions related to arthritis). Sub-groups of the Orthopaedic RCG highlighted in this report include Hip Fracture, Hip Replacement and Knee Replacement, as well as Other (any orthopaedic condition which does not fall into the first three groups).

Stroke: Includes cases with the diagnosis of cerebral ischemia due to vascular thrombosis, embolism, or haemorrhage. Cerebral impairment related to non-vascular causes such as trauma, inflammation, tumour, or degenerative changes are excluded. Sub-groups of the stroke RCG highlighted in this reports are Left Hemiplegia, Right Hemiplegia, and Other Stroke.

Brain Dysfunction: The Non-Traumatic Brain Dysfunction RCG includes cases with such aetiologies as neoplasm, metastases, encephalitis, inflammation, anoxia, metabolic toxicity, or degenerative processes. The Traumatic Brain Dysfunction RCG includes cases with motor or cognitive disorders secondary to trauma.

Amputation of Limb: Includes cases in which the major deficit is absence of a limb. Cases for which limb amputation is the major deficit are included even if the need for treatment is principally related to wound care or a stump infection.

Spinal Cord Dysfunction: Includes cases with various forms of quadriplegia/paresis and paraplegia/paresis. The Non-Traumatic Spinal Cord Dysfunction sub-group includes cases secondary to non-traumatic cause, including post-operative change. The Traumatic Spinal Cord Dysfunction sub-group includes cases secondary to traumatic cause. Cases for which spinal cord dysfunction is the major deficit are included even if the need for treatment is principally related to the urinary tract or skin ulceration.

Medically Complex: Includes cases with multiple medical and functional problems and complications prolonging the recuperation period. Medically complex cases require medical management of a principal condition and monitoring of co-morbidities and potential complications. Rehabilitation treatments are *secondary* to the management of the medical conditions. The Medically Complex RCGs group clients by the program/treatment focus rather than the aetiology.

Debility: Includes cases where clients are generally de-conditioned and there may not be a specific aetiology associated with the decline in function. Includes only clients who are debilitated for reasons other than cardiac or pulmonary conditions.

Cardiac Disorders: Includes cases in which the major disorder is poor activity tolerance secondary to cardiac insufficiency or general deconditioning due to a cardiac disorder.

Neurological Conditions: Includes cases with a variety of neurological, muscular dysfunctions and aetiologies such as Multiple Sclerosis, Guillain-Barré Syndrome and Parkinsonism.

Pulmonary Disorders: Includes cases in which the major disorder is poor activity tolerance secondary to pulmonary insufficiency. Underlying aetiologies include chronic obstructive lung disease, chronic bronchitis, etc.

Arthritis: Includes cases in which the major disorder is arthritis of all aetiologies. The arthritis RCG is used for clients entering the rehabilitation program without an immediately preceding orthopaedic arthroplastic procedure.

Major Multiple Trauma: Includes cases with more complex management due to involvement of multiple systems or sites following trauma.

Pain Syndromes: Includes cases in which the major disorder is pain, usually chronic and benign, of various aetiologies.

Burns: Includes cases in which the major disorder is thermal injury to major areas of the skin and or underlying tissue.

Congenital Deformities*
Developmental Disabilities*
Other Disabling Impairments*

*Due to small numbers of assessments in the NRS, these three RCGs are grouped together and referred to as "Other RCGs" within this report where indicated.

Rehabilitation Client Groups adapted with permission from the UDS$_{MR}$ impairment codes.

Appendix C—Elements in the FIM™ Instrument

A definition of each element can be found in the NRS Glossary (Appendix A).

Motor Skills

Eating
Grooming
Bathing
Dressing—upper body
Dressing—lower body
Toileting
Bladder management
Bowel management
Transfers: bed, chair, wheelchair
Transfers: toilet
Transfers: tub or shower
Locomotion: walk/wheelchair
Locomotion: stairs

Cognitive Skills

Comprehension
Expression
Social interaction
Problem solving
Memory

Appendix D—List of Tables

The source tables for this report are available on the CIHI Web site at www.cihi.ca under "Quick Stats". These tables can be found under "Inpatient Rehabilitation" when searching by "Topic" or by "National Rehabilitation Reporting System (NRS)" when searching by "Source".

Chapter 2

Chapter 3

Chapter 3 (cont'd)

Chapters 4–6