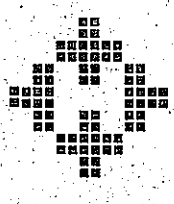
Population Health Information System
1991/92

Utilization of Hospital Resources

Volume II: Methods and Tables

December 1993



Manitoba Centre for
Health Policy and Evaluation
Department of Community Health Sciences
Faculty of Medicine, University of Manitoba

Charlyn Black, M.D., Sc.D.
Noralou Roos, Ph.D.
Charles A. Burchill, B.Sc., M.Sc.

Population Health Information System
1991/92

Utilization of Hospital Resources

Volume II: Methods and Tables

December 1993

Manitoba Centre for
Health Policy and Evaluation
Department of Community Health Sciences
Faculty of Medicine, University of Manitoba

Charlyn Black, M.D., Sc.D.
Noralou Roos, Ph.D.
Charles A. Burchill, B.Sc., M.Sc.

Acknowledgements

The authors wish to acknowledge the efforts and expertise that many individuals have contributed to producing this report. Fred Toll, retired from the Manitoba Health Services Commission, has acted as a patient advisor to help us understand the data. Leonard MacWilliam provided technical support for many of the critical analyses. Shannon Lussier and Trish Franklin prepared the final documents, including text, tables and some graphs, while Joanne Stewart produced most of the graphs in Volume I. Jamie Blanchard M.D., M.P.H., Provincial Epidemiologist for Manitoba Health, and Charlotte Johnson, Acting Assistant Director, Operations, Health and Welfare as well as a masters student in the Department of Community Health Sciences, provided valuable input into refining the analyses. Linda Bakken, Andrea Zajac and Valerie Mann of Capital Planning Branch, Manitoba Health, helped us develop an index to assign provincial hospitals according to the level of care they provide.

Many individuals provided feedback on a draft version of the document: Lauraine Brown, Marnie Brownell, Réal Cloutier, Betty Havens, Al Holtslag, Pat Nicol, Brian Postl, M.D., Marilyn Robinson, Denis Roch, Brenda Snider, and Andrea Zajac all contributed helpful perspectives.

Input from members of the Centre's Population Health Information System Group was a valuable continuing resource. The Group is headed by Noralou Roos, Ph.D. and consists of, in alphabetical order: Charlyn Black, M.D., Sc.D.; Bogdan Bogdanovic, B.Comm., B.A.; Charles A. Burchill, B.Sc., M.Sc.; KC Carriere, Ph.D.; Marsha Cohen, M.D., M.H.Sc., F.R.C.P.C.; Carolyn DeCoster R.N., M.B.A.; Norm Frohlich, Ph.D.; Leonard MacWilliam, M.Sc., M.N.R.M.; Cam Mustard, Sc.D.; Doug Tataryn, Ph.D.; and Fred Toll.

The Manitoba Centre for Health Policy and Evaluation

The Manitoba Centre for Health Policy and Evaluation (MCHPE) is a unit within the Department of Community Health Sciences, Faculty of Medicine, University of Manitoba. The MCHPE is active in health services research, evaluation and policy analysis, concentrating on using the Manitoba health data base to describe and explain patterns of care and profiles of health and illness.

Manitoba has one of the most complete, well-organized and useful health data bases in North America. The data base provides a comprehensive, longitudinal, population-based administrative record of health care use in the province.

Members of the MCHPE consult extensively with government officials, health care administrators, and clinicians to develop a research agenda that is topical and relevant. This strength, along with its rigorous academic standards and its exceptional data base, uniquely position the MCHPE to contribute to improvements in the health policy process.

The Centre's researchers are widely published and internationally recognized. They collaborate with a number of highly respected scientists from Canada, the United States and Europe.

Utilization of Hospital Resources
Volume II: Methods and Tables

Contents

List of Tables

Utilization of Hospital Resources
Volume II: Methods and Tables

1. Introduction

1.1 Population Health Information System

In January, 1991, the Manitoba Centre for Health Policy and Evaluation (MCHPE) was established at the University of Manitoba to provide Manitoba Health with research-based analysis, evaluation and identification of policy options. The researchers agreed to undertake several specific projects each year as well as to develop a health information system for the Province.

The Population Health Information System is designed to focus on the link between health care utilization and health, to make it possible to examine how effectively and efficiently a health care system produces (or fails to produce) health across various regions of the Province. We have attempted to develop an information system that supports rational decision-making and that ultimately shifts discussions from a focus on the demand for health care to a demand for health. The system is population-based, designed to track the health status and health care use of residents of given regions regardless of where such use takes place, an approach that is distinct from examining patterns of care delivered by specific providers or facilities.

The hospital module is one of several different modules being created as part of the Population Health Information System, each of which is at a different stage of development:

Population Health: Health Status Indicators - To be released January, 1994
Socioeconomic Status and Health - To be released January, 1994
Utilization of Personal Care Home Resources - Released October, 1993
Utilization of Hospital Resources - Current document, to be released January, 1994
Utilization of Physician Resources - To be released February, 1994

Separate reports will be produced for each of the modules. Each report will be presented in two volumes: Volume I will present key findings and Volume II will contain a more detailed set of tables. The first reports of the Population Health Information System will have limited

distribution, primarily to obtain comment and feedback. Subsequent versions of the system will include several years of data to permit analysis over time and will be distributed to a wider audience.

1.2 Hospital Use Module

The Hospital Module of the Population Health Information System is being developed in two phases. The first, contained in Volumes I and II of this report, focuses on describing utilization of hospital services. The second phase will address cost implications of observed patterns of hospital use.

This report examines measures of need for medical care, overall use of hospital care, use of long stay and short stay inpatient care, issues of access, and patterns of care that contribute to differential utilization.

Several different perspectives are presented in the key findings. First, patterns of hospital care received by Winnipeg residents are compared and contrasted with patterns of care received by individuals who reside in other areas of the province (non-Winnipeg). Next, the analyses focus on comparing and contrasting patterns of care received by residents of the different Manitoba Health regions, with Winnipeg defined as a single region.

2. Methods

2.1 Analytic Approach

The major focus of analyses in the Population Health Information System is on describing patterns of health and medical care for residents of a defined area. For the hospital module, all hospital care received by individuals, whether it is received within or out of the region of residence, is attributed back to the area of residence. This population-based approach is fundamentally different from an analysis that focuses on patterns of care delivered by hospitals.

This module presents analyses that are intended to describe rather than explain different patterns of utilization of hospital resources. Because data in this report are presented without information about tests of statistical significance or confidence intervals, caution must be used in interpreting results.[1] However, parallel analyses conducted on 1990/91 data produced similar patterns, lending credibility to the findings.

The report analyses hospital abstracts submitted to Manitoba Health for the fiscal year 1991/92 by hospitals (both in and out of province) that provided services to Manitoba residents as defined by Manitoba Health.[2] Population counts are based on analysis of the Manitoba Health Registry as of December 31 of the 1991/92 fiscal year.[3] Numbers

---

[1] From a statistical perspective, because the findings are based on the analysis of information from all units in the population (instead of a sample which collects information from only part of the population), they are not subject to sampling variability (Satin and Shasty, 1986). However, they may be affected by random variation from year to year, particularly where the number of events is small and the probability of such events is also small (National Center for Health Statistics, 1993), such as for admissions for long stay care.

[2] The definition of residents includes persons who reside temporarily out of the province (e.g. students attending post-secondary schools out of province) as well as Manitoba residents who have moved to another province (for two months after their move). In addition, new Manitobans arriving from another province (eligible for coverage immediately) are also included. Excluded from the analyses are: non-residents of Manitoba, armed forces personnel, federal penitentiary inmates and foreign students, for whom hospital abstracts are submitted when they obtain services from Manitoba hospitals.

[3] Thus newborns born after December 31, 1991 were not counted in population denominators, but were included in the service counts. Conversely, persons who died after December 31, 1991 were counted in the population denominators.

produced by the Manitoba Centre's registry file overcount Manitoba's population by 0.7 percent in comparison to figures produced by Manitoba Health, related to slightly different approaches to using information about changes in registry status.

Hospital data analyzed by the Centre are comparable to that compiled annually by Manitoba Health in the Annual Reports of the (formerly) Manitoba Health Services Commission. They include information about hospitalizations in both active treatment and extended treatment beds. As in Manitoba Health reports, some hospital services (e.g. newborn separations) are excluded. Our numbers differ slightly due to exclusion of hospitalizations for persons who were not resident in Manitoba and for contacts that did not fall within the fiscal year. In addition, we limited our analyses to inpatient and major surgical outpatient cases, thereby excluding 71,867 non-inpatient contacts which occurred for purposes other than major day surgery procedures.[4] Thus, the report is based on an analysis of 183,414 total hospital contacts for a population of 1,140,406 Manitoba residents.

Residents of Manitoba were identified and information about region of residence was obtained from the Manitoba Health registry file as at December 31, 1991, except for Treaty Status Indians.[5] For these individuals, residence information on the registry file may not be reliable because Manitoba Health assigns the region of residence as the First Nation of origin, usually a municipality denoted as an Indian reserve, instead of using actual residence information. Postal code information from hospital abstracts was therefore used to assign region of residence.

The numerator for rates was calculated by counting or summarizing events (i.e. hospitalizations) over the 1991/92 fiscal year for individuals identified as residents of a specified region. Denominators were based on counts of individuals resident in specified regions as per registry information as of December 31, 1991. Rates of the number of persons using hospital services, number of separations, number of episodes of hospital care and total

---

[4] Hospitals provide a variety of clinical services on a non-inpatient basis, including contacts for 'not for admission' (NFA) and day surgery, day care, and day visits. Among this group of contacts, we identified contacts for surgical procedures that can alternately be performed on an inpatient or NFA basis (e.g. cataract surgery, hernia repair), which we labelled as 'major surgical outpatient' care. We excluded contacts for minor procedures (e.g. toenail removal, skin biopsy) and other services provided on a non-inpatient basis. Further details are provided in Section 2.2.

[5] The designation 'Treaty Status Indians' refers to a specific group of the aboriginal population who have certain rights and privileges under the Indian Act of Canada.

number of hospital days were developed by dividing numerator information by population denominators, measured in thousands. Rates were generally calculated using the total population as a denominator, but age- and sex-specific rates were also calculated, using information pertaining to the relevant age and sex categories for both numerator and denominator. Average length of stay was calculated by dividing total number of hospital days for residents of a given region for the fiscal year by total number of inpatient hospital separations during the same period.

In addition to crude rates, age- and sex-standardized rates of indicators were developed to permit comparisons across regions. The age and sex structure of the population of a region, together with differing needs for care, are factors recognized as contributing to different regional requirements for hospital resources, and hence as factors that ultimately influence patterns of care delivered. Unless otherwise indicated, rates presented in Volumes I and II of this report are adjusted or standardized rates. They have been age- and sex-adjusted using Manitoba population rates and an indirect method of standardization. This procedure mathematically removes the effects of different population structures in influencing rates of use of health care and produces 'synthetic' rates. These 'adjusted' rates provide an indication of the use of care in one region relative to use in another, after the effects of population structure have been removed.

2.2 Conceptual Issues

Hospital Separations

Typically, hospital separations represent the end point of an inpatient hospital contact which consists of several days of care. Hospital abstracts are also filed for activities which do not involve admission to hospital such as day surgery, administration of chemotherapy, and other activities. Technically, the number of admissions to hospital should be equivalent to the number of separations from hospital, but the lag time between admission and separation dates for inpatient care sometimes means that admissions and separations occur in different fiscal years, leading to minor differences between the two approaches to counting hospital contacts. Because hospital abstracts for inpatient care are based on information gathered at time of separation from the hospital, the analyses in this report are therefore based on separations. However, the words separation, discharge and stay are used interchangeably.

Classification of Hospital Care

Several terms are used to describe different subsets of hospital care considered in analyses in this report:

All hospital care refers to the complete data set of hospital contacts (183,414) considered for analysis. Of these, 151,444 were inpatient separations and 31,970 were contacts for major surgical outpatient procedures.[6] The analyses excluded 71,867 outpatient contacts which occurred for purposes other than major day surgery procedures.[7] Hospitals are not required to report on all non-inpatient activities and there is variation in the way they are recorded across hospitals, making them unreliable for analysis. In general, both inpatient and surgical outpatient contacts are included in analyses of 'all hospital care'; however day surgery contacts are excluded from calculations of length of stay.

Inpatient hospital care refers to all contacts in which patients had hospital stays of one or more days (151,444 separations). It has been further classified into: **short stay inpatient care**, comprising all separations with 1 to 59 days length of stay (147,817 separations); and **long stay inpatient care**, comprising all separations lasting 60 days or longer (3627 separations).[8] The term acute care is used interchangeably with the term short stay inpatient care.

Outpatient surgical care refers to the 31,970 contacts for major surgical outpatient procedures. These were defined as outpatient cases (day care with zero day length of stay) for surgical care recognized as falling into a surgical DRG category (Averill, 1991).[9] The

---

[6] Hospitals provide a variety of clinical services on a non-inpatient basis, including contacts for 'not for admission' (NFA) and day surgery, day care, and day visits. Among this group of contacts, we identified contacts for surgical procedures that can alternately be performed on an inpatient or NFA basis (e.g. cataract surgery, hernia repair), which we labelled as 'major surgical outpatient' care.

[7] The 71,867 excluded contacts comprise minor elective surgical or endoscopic procedures (e.g. toenail removal, skin biopsy) and other services such as day care and day visits provided on a non-inpatient basis. It is estimated that the total number of outpatient contacts probably exceeds 400,000 annually (Toll, personal communication, 1993), but only certain types of care must be reported to Manitoba Health (Appendix G, Hospital Abstract User Manual, 1987).

[8] The first 59 days of a long stay admission are included in the long stay rather than the short stay analyses.

[9] The DRG program classifies hospital care into homogenous groups with respect to clinical and resource consumption and is used as a tool to pay hospitals for care provided in the United States. Since having a surgical procedure is one of the major factors contributing to higher resource use (costs)

outpatient surgical care category includes adult, pediatric and obstetrical outpatient day surgical cases (see Type of Care, below).

Types of Rates Calculated

Rates of several different parameters were developed to profile different aspects of hospital utilization. The population-based parameters are expressed as rates per 1000 residents (per year) and may be presented as either crude or adjusted rates. They count events for residents of given regions, regardless of where the event takes place, so hospitalizations occurring in Winnipeg for residents of Thompson are attributed back to the Thompson region.

Number of persons hospitalized counts the number of unique residents who have had contact with the hospital system (i.e. an individual who has had one or more hospital separations is counted only once, regardless of the number of separations). This measure provides a useful indicator of the ability of people in one region or another to receive hospital care, comparisons of which are useful for consideration of issues of access and equity across regions.

Number of separations counts the number of hospital contacts (i.e. separations or outpatient contacts) for any given region. It is a function of both the rate of persons hospitalized (above) and the average number of times they are hospitalized; it is the most commonly used measure of hospital utilization.

Number of episodes of hospital care counts the number of hospital separations that represent an initiation of use of hospital care (i.e. an additional separation resulting from a transfer of a patient between hospitals is not counted). This measure adjusts for bias introduced by double counting separations for patients who are transferred from one hospital to another to receive appropriate care, which contributes to higher measured rates of hospital contacts for residents living outside of Winnipeg.

Number of days of hospital care counts the total number of days of hospital care used by all residents of a given region. This measure is a function of the number of separations and the

---

during a hospital stay, the program partitions care into surgical and nonsurgical care. It therefore permits identification of hospitalizations involving surgery, for either inpatient or outpatient care.

average length of stay. It provides a useful estimate of the total resources used to provide inpatient hospital care to residents of one region versus another.

Length of stay measures the average number of days of care for inpatient hospitalizations for residents of a given region. Zero day stays for surgical outpatient care are therefore not included in the calculation. This measure has been used to assess hospital efficiency, after controlling for factors such as severity of cases (Brownell and Roos, 1992). It is not a population-based measure because the denominator is the number of hospitalizations; consequently it has not been age- and sex-adjusted in the analyses.

Region of Residence

Analyses are oriented to describing differing patterns of hospital utilization by residents of the eight regions defined by Manitoba Health: Central, Eastman, Interlake, Norman, Parklands, Thompson, Westman, and Winnipeg. For comparative purposes, summary data for two other regions, the province and an aggregate of all non-Winnipeg regions, are also presented. For ease of reference, the non-Winnipeg region is sometimes referred to as a rural region in comparisons between Winnipeg and non-Winnipeg regions.

Bed Supply

Manitoba Health publishes information about the supply of hospital beds located in each region, expressed as beds per region and beds per 1000 population (Manitoba Health Services Commission Annual Report 1991/92). The latter is referred to in this report as **actual bed supply**. This measure does not account for hospital beds located in other regions, particularly Winnipeg, that are used by residents of a given region.[10] It therefore underestimates beds available to and used by regions outside of Winnipeg, while overestimating beds available to residents of the Winnipeg region. To eliminate this bias, a measure of **effective bed supply** (i.e. effective number of hospital beds per 1000 residents) was developed, in which Winnipeg beds were added for each rural region, proportional to their use. Conversely, the effective bed supply for Winnipeg residents was reduced in proportion to use of Winnipeg beds by non-Winnipeg residents. Bed supply ratios have not been age- and sex-adjusted.

---

[10] In 1991/92, 19.5 percent of Winnipeg hospital beds were used by non-Winnipeg residents (Manitoba Health Services Commission Annual Report, 1991/92); 16.4 percent were used by residents of non-Winnipeg regions and 3.1 percent were used by persons who reside outside of Manitoba.

Indicators of Need

While age- and sex- adjustment removes the effects of population structure, it does not adjust for need. Adjusted rates of hospital utilization must therefore be considered in light of the relative 'need' for medical care across regions. Two indicators of need are presented in this report. The first is an index of socioeconomic risk developed for the Socioeconomic Status and Health module of the Population Health Information System (Frohlich and Mustard, 1993). Measures of socioeconomic status capture preconditions that place individuals at risk of poor health and therefore may identify their relative need for various types of medical care. They have been shown in Canada and elsewhere to be strongly related to poor health and to higher rates of use of hospital care (Carstairs and Morris, 1991; McMahon et al., 1993). The indicator developed by Frohlich and Mustard is referred to as the **Socioeconomic Risk Index**. It comprises six regional indicators derived from census data.[11]

The second indicator is the mortality rate for ages 0 to 64 years, adjusted to the provincial population and indexed to the provincial rate, referred to as the **Standardized Mortality Ratio (0-64 Year)**. It was developed for the Population Health: Health Status Indicators module of the Population Health Information System (Cohen and MacWilliam, 1993). This measure has been seen by many as the most valid and practical indicator of health status capturing the need for health care (Palmer et al. 1979) and has been proposed for needs-based funding of regional health services in Ontario (Eyles et al. 1991; Birch and Chambers 1993; Eyles and Birch 1993). While using death rates to determine need for hospital care seems counterintuitive, the measure is strongly associated with indicators of morbidity and socioeconomic status. Furthermore, it is known that a large amount of hospital care is used in the period just prior to death.

2.3 Indicators of Differential Utilization

Utilization rates were categorized in several ways to describe differences in the way hospital care is used across regions. For comparisons by age and sex category, age- and sex-specific rates were calculated. For other comparisons, utilization rates were partitioned into categories

---

[11] The six indicators are: 1) percentage of the population between the ages of 25 and 34 having graduated from high school; 2) percentage of the labour force between 15 and 24 years of age that is unemployed; 3) percentage of the labour force between 45 and 54 years that is unemployed; 4) percentage of single parent female households; 5) percentage of female labour force participation; and 6) average dwelling value.

pertaining to patient comorbidity, type of care, and other factors. Because rates for each category were calculated using the total population as the denominator, the categories for each partition sum to the total utilization rate. Consequently, the percentage of a region's total utilization by any one category of care may be described. Description of the concepts and categories used are outlined below.

Age and Sex

Rates of hospital care were subdivided into age and sex categories to compare patterns across regions. For short stay care, ages 0 to 14, 15 to 64, 65 to 74, and 75 and over were examined separately for males and females. For long stay care the age categories were: 0 to 64 years, 65 to 74 years, and 75 years and older. Age- and sex-specific rates are crude rates (i.e. not age- and sex- adjusted) and are calculated using the relevant age- and sex-specific population as the denominator. Because the denominator for each category is not the total population, the rates may be used for direct comparison but cannot be summed.

Patient Comorbidity

Comorbidity refers to medical conditions that exist in addition to the most significant condition which causes a patient's stay in hospital. The type and number of comorbid conditions provide an indication of the health status (and risk of death) of patients (Charlson et al. 1987). We used counts of comorbid conditions identified by Charlson in order to classify hospital cases by number of comorbid conditions. Cases (patients) were classified as having none, one, two, or three or more, of the comorbid conditions known to increase risk of death.

Level of comorbidity and complications

Comorbidity, together with complications of care, affect the complexity of hospital care required to treat given patients. The RDRG (Refined DRG) program (Fetter and Freeman, 1989) is an alternate version of the DRG program. In addition to classifying cases into related clinical groups, it also classifies them according to patterns of comorbidity and complications of care that are likely to have an impact on use of hospital resources. We used the RDRG program to classify patients into three groups of complexity: those where comorbidity and complications were likely to have no or only minor impact on hospital resource use; those in which comorbidity and complications were likely to have a moderate impact; and those where comorbidity and complications were likely to have a major impact.

The final category also included a catastrophic category for surgical cases, where, for instance, a patient had an acute myocardial infarction while undergoing surgery.

Location of Care Received

Rates of care received by regional residents have been categorized in two ways to characterize the location where hospital care is received. In some analyses, care has been classified by whether it was received 'in province versus out of province'. In other analyses, to better understand the dynamics of intraprovincial travel for care, rates of care have been categorized into: care that is obtained within the region of residence; care that is obtained outside the region of residence, in Winnipeg; and care that is received outside the region of residence in a region other than Winnipeg.

Level of Care Received

Hospitals in Manitoba range from small institutions, having less than 15 beds, to large urban teaching hospitals with hundreds of beds and a capacity to provide very specialized services. Use of one type of hospital instead of another has implications for the availability of specialized services, distance a patient must travel for care, and resource costs of providing care. Hospitals were grouped according to their similarities (in terms of size, level of specialization, and environment) in order to permit analyses of the relative rates of use of different levels of hospital care. Seven levels of hospital were defined (teaching, urban community,[12] major rural, intermediate rural, small rural, small multi-use,[13] northern isolated) in addition to other categories, including: institutions that function as personal care homes,[14] chronic and rehabilitation institutions,[15] Federal nursing stations,[16] and out of

---

[12] Urban community hospitals include the five Winnipeg community hospitals as well as Brandon General Hospital.

[13] Small, multi-use facilities are those that have, in addition to regular hospital beds, swing beds that can provide either hospital or personal care home services. This category included Benito, MacGregor-North Norfolk, Manitou-Pembina, Reston, Rossburn, and Whitemouth hospitals.

[14] Three hospitals in the province, with a total of 27 beds, function as nursing homes but are not accredited as same.

[15] This includes institutions that have major chronic and rehabilitation functions: the Deer Lodge Hospital, the Winnipeg Municipal Hospitals, the Rehabilitation Centre for Children and the Manitoba Adolescent Treatment Centre. In contrast, extended treatment beds located in institutions that function primarily as active treatment centres (i.e. Brandon, Dauphin, Morden, Portage, St. Boniface, Steinbach and Swan River) are included in the level of care category of the primary institution.

province facilities. These categories have been aggregated for presentation in graphs and tables. Classification of specific hospitals, as well as information about number of beds and interprovincial per diem rates is provided in Appendix A.

Length of Stay

Hospital stays were grouped into eight length of stay categories: 1 to 8 days, 9 to 14 days, 15 to 22 days, 23 to 59 days, 60 to 89 days, 90 to 179 days, 180 to 365 days, and 365 days and over. The first four categories were used to analyze short stay care (1-59 days), while the latter four were used to analyze long stay care (60+ days).

Type of care

Among inpatient services, several types of care were differentiated, reflecting clinical categories of care: adult surgical, adult medical, obstetric, psychiatric, and pediatric (including both medical and surgical) services. In these analyses, adult surgical care refers only to inpatient care; it does not include adult surgical care provided in day surgery settings. Because hospital abstracts for psychiatric care are not submitted to Manitoba Health by several relevant institutions - the Eden Mental Health Centre, Selkirk Mental Health Centre, and Brandon Mental Health Centre - analyses of psychiatric care systematically underreport utilization by residents of some regions, and must be interpreted accordingly.

Intensity of Resource Use

Resources used to provide hospital care vary across cases.[17] We used DRG weights[18] to classify hospital care into three levels of intensity of resource use. First, each hospital contact was assigned a DRG weight and all cases were ranked from lowest to highest intensity of resource use. Three levels were defined to classify rates of hospital care received by regional residents: the lowest ten percent of cases - including stays for false labour, pediatric

---

[16] Federal nursing stations report through the hospital abstract system but Provincial nursing stations report their activities through an alternate mechanism. Inpatient care delivered by Provincial nursing stations (5 in Norman region and 3 in Thompson region) is therefore not captured in the dataset.

[17] Resources used by hospitals include labour and non-labour inputs such as drugs, equipment, food and fuel. Resource inputs vary in terms of price, volume and mix (Black and Frohlich, 1991).

[18] DRG weights describe resource use for different types of care in relation to an arbitrarily defined standard case. While they were developed exclusively with United States cost data, they correlate well with similar intensity weights (CMG) developed from U.S. data for Canadian applications.

tonsillectomy and/or adenoidectomy, and other care requiring few resources - were classified as very low intensity; the highest five percent of cases, which used 11.5 percent of hospital days and included separations for coronary artery bypass procedures, craniotomy and other major cases requiring intense hospital treatment, were called very high intensity care; the remaining cases were classified as intermediate in resource intensity.

Discretionary Nature of Services

Increasingly, it is recognized that requirements for hospital care are not clearly defined and that, among different population groups, different rates of hospital care are explained not only by differing needs for care but also by a population's socioeconomic status, by the availability of hospital beds and by differing judgements about requirements for hospital care among clinicians (Wennberg, Freeman and Culp, 1987). Wennberg and others (1989) have characterized cases by the degree of variation in rates of hospital admission that they exhibit across population groups. Admission rates for certain medical conditions show the greatest variability, followed by pediatric admissions and those for minor surgery. By contrast, rates for major surgery and for certain other conditions (which tend to reflect incidence of the disease) show very little variability. Wennberg has suggested that conditions for which there is marked variation are likely to represent care in which physician discretion plays a role. In contrast, others contend that some of the observed variation is related to socioeconomic risk (McLaughlin et al. 1989; McMahon et al. 1991; McMahon et al. 1993) and other factors such as geographic isolation and lack of alternatives to hospital care. Based on Wennberg's work, we defined the following categories of inpatient hospital care:

High variation medical conditions are those conditions, such as pneumonia, gastroenteritis and chronic obstructive lung disease, for which highly variable admission rates have been consistently demonstrated. These conditions represent more than 80 percent of medical admissions to hospital (Wennberg, 1986). In these analyses, they include both pediatric and adult admissions.

Surgical conditions include both pediatric and adult surgical inpatient (but not outpatient) surgical cases that, as a group, typically show less variability than high variation medical conditions defined above. Examples include admissions for cholecystectomy and appendectomy.

Low variation conditions include medical and surgical conditions which demonstrate relatively stable rates across populations. They include admissions for heart attack, hip fracture and colon cancer surgery, for which there is little clinical ambiguity about the need for hospitalization.

Indicators of Access to Hospital Services

Access has been measured with indicators of utilization that are likely to illustrate deficiencies in individuals' ability to obtain certain types of hospital care, presented as rates of persons who receive care. Patterns of use of newer technology, relatively scarce interventions, and innovations in care delivery (such as day surgery) are important access issues in a province which fully insures medical care but has a concentration of services in one location, namely Winnipeg. We analyzed rates of use of very high intensity care, rates of care received in more technologically sophisticated teaching and urban hospitals, and rates of use of inpatient and outpatient surgical procedures to provide insight into issues of access.

3. References

Averill RF. Development. Chapter 2 in: DRGs: Their Design and Development. Fetter RB, Brand DA, Gamache D (eds.). *Health Administration Press*, Ann Arbor, 1991.

Birch S, Chambers S. To Each According to Need: A Community-based Approach to Allocating Health Care Resources. *Can Med Assoc J* 1993; 149(5):607-612.

Black C, Frohlich N. Hospital Funding within the Health Care System: Moving towards Effectiveness. *Manitoba Centre for Health Policy and Evaluation*, Winnipeg, 1991.

Brownell M, Roos N. An Assessment of How Efficiently Manitoba's Major Hospitals Discharge Their Patients. *Manitoba Centre for Health Policy and Evaluation*, Winnipeg, 1992.

Carstairs V, Morris R. Deprivation and Health in Scotland. *Aberdeen University Press*, 1991.

Charlson ME, Pompei P, Ales KL, MacKenzie CR. A New Method of Classifying Prognostic Comorbidity in Longitudinal Studies: Development and Validation. *J Chronic Dis*, 1987; 40: 373-383.

Cohen MM, MacWilliam L. Population Health: Health Status Indicators. *Manitoba Centre for Health Policy and Evaluation*, Winnipeg, 1993.

Eyles J, Birch S, Chambers S, et al. A Needs-Based Methodology for Allocating Health Care Resources in Ontario, Canada: Development and an Application. *Soc Sci Med*, 1991; 33 (4):489-500.

Eyles J, Birch S. A Population Needs-based Approach to Health Care Resource Allocation and Planning in Ontario: A Link between Policy Goals and Practice? *Can J Public Health* 1993; 84:112-117.

Fetter R, Freeman J. DRG Refinement with Diagnostic Specific Comorbidities and Complications: A Synthesis of Current Approaches to Patient Classification. Final Report. The Health Care Financing Administration Cooperative Agreement, Numbers 15-C-98930/1-01 and 17-C-98930/1-0251. *Health Systems Management Group*, New Haven, 1989.

Frohlich N, Mustard C. Socio-Economic Status and Health: A Preliminary Regional Analysis. *Manitoba Centre for Health Policy and Evaluation*, Winnipeg, 1993.

McLaughlin, Normolle DP, Wolfe RA, et al. Small Area Variation in Hospital Discharge Rates: Do Socioeconomic Variables Matter? *Med Care* 1989; 27:507-521.

McMahon LF, McLaughin CG, Petroni GR, et al. Small Area Analysis of Hospital Discharges for Musculoskeletal Diseases in Michigan: The Influence of Socioeconomic Factors. *Am J Med* 1991; 91:173-179.

McMahon LF, Wolfe RA, Griffith JR, et al. Socioeconomic Influence on Small Area Hospital Utilization. *Med Care* 1993; 5 (Suppl):YS29-YS36.

Manitoba Health Services Commission. Annual Report 1991-92. *Manitoba Health*, Winnipeg, 1993.

Manitoba Health Services Commission. Hospital Abstract User Manual. *Manitoba Health*, Winnipeg, 1987.

National Center for Health Statistics. Births, Marriages, Divorces, and Deaths for February 1993. Monthly Vital Statistics Report; vol 42 no 2. *Public Health Service*, Hyattsville, Maryland, 1993.

Palmer S, West P, Patrick D, et al. Mortality Indices in Resource Allocation. *Community Med* 1979; 1:275-281.

Satin A, Shasty W. Survey Sampling: A Non-Mathematical Guide. *Statistics Canada*, Ottawa, 1983.

Wennberg, J. Which Rate is Right? *N Engl J Med*, 1986; 314 (5):310-311.

Wennberg J, Freeman J, Culp W. Are Hospital Services Rationed in New Haven or Over-Utilised in Boston? *The Lancet*, 1987; 1:1185-1188.

Wennberg JE, Freeman JL, Shelton RM et al. Hospital Use and Mortality among Medicare Beneficiaries in Boston and New Haven. *N Engl J Med* 1989; 321:1168-1173.

4. Tables

4.1 Population Characteristics

TABLE 1

REGIONAL POPULATIONS[1] BY AGE & SEX

1991/92

	Central	Eastman	Interlake	Norman	Parklands	Thompson	Westman	Winnipeg	Non-Winnipeg Comparison	Manitoba
M 0-14	12,234	11,052	8,083	3,279	5,099	7,899	13,008	67,122	60,654	127,776
F 0-14	11,549	10,724	7,547	3,242	4,778	7,605	12,449	63,741	57,894	121,635
M 15-64	28,998	28,099	24,058	8,588	14,102	14,722	35,904	218,161	154,471	372,632
F 15-64	28,167	26,151	22,649	7,919	13,212	13,474	35,784	221,434	147,356	368,790
M 65-74	3,382	2,644	2,689	544	2,322	428	5,016	20,628	17,025	37,653
F 65-74	3,930	2,684	2,871	569	2,430	394	5,798	27,475	18,676	46,151
M 75+	2,591	1,726	1,794	349	1,777	244	3,975	12,756	12,456	25,212
F 75+	3,633	2,100	2,245	462	2,336	253	5,790	23,738	16,819	40,557
Total number of residents	94,484	85,180	71,936	24,952	46,056	45,019	117,724	655,055	485,351	1,140,406

[1] Population counts were obtained from the Manitoba Health registry file as of December 31, 1991. Region of residence was also assigned from the registry file, except for Treaty Status Indians, for whom postal code information from hospital separation abstracts was used.

TABLE 2

REGIONAL INDICATORS OF NEED

1991/92

	Central	Eastman	Interlake	Norman	Parklands	Thompson	Westman	Winnipeg	Non-Winnipeg Comparison	Manitoba
Socio economic risk index[1]	-0.27	0.22	0.75	2.79	1.97	4.4	0.12	-0.44	Not available	0.00
(Rank of lowest to highest)	(2)	(4)	(5)	(7)	(6)	(8)	(3)	(1)		
0-64/Year adjusted mortality ratio[2]	0.90	1.07	1.09	1.42	1.17	1.71	0.83	0.96	1.06	1.00
(Rank of lowest to highest)	(2)	(4)	(5)	(7)	(6)	(8)	(1)	(3)		

[1] The socioeconomic risk index was developed for the Socioeconomic Status and Health module of the Population Health Information System. It comprises six regional indicators derived from census data. Higher values on the risk index are associated with higher need for various types of medical care. Further information is provided in Section 2.2 of this report.

[2] The 0 to 64 year adjusted mortality ratio was developed for the Population Health: Health Status Indicators module. It has been seen by many as the most valid and practical indicator of health status representing the need for health care. Further information is provided in Section 2.2 of this report.

4.2 All Hospital Care

TABLE 3

REGIONAL USE OF HOSPITAL RESOURCES:[1]

USE OF ALL HOSPITAL CARE[2]

1991/92

	Central	Eastman	Interlake	Norman	Parklands	Thompson	Westman	Winnipeg	Non-Winnipeg Comparison	Manitoba
Number of residents	94,484	85,180	71,936	24,952	46,056	45,019	117,724	655,055	485,351	1,140,406
Effective number of hospital beds per 1000 residents[3]	5.8	4.1	4.6	8.6	8.3	6.0	7.7	5.1	6.2	5.6
Number of persons hospitalized per 1000 residents	122	119	121	166	140	174	126	100	130	113
Number of episodes of hospital care per 1000 residents[4]	169	167	169	246	208	254	177	132	185	155

[1] All rates (i.e. except for effective number of beds and average length of stay) have been age- and sex-adjusted using Manitoba population rates and an indirect method of standardization.

[2] All hospital care refers to the complete set of hospital contacts (183,414) made by Manitoba residents at hospitals both in and out of province. Of these, 151,444 were inpatient admissions and 31,970 were major day surgery contacts. The analyses excluded outpatient contacts which occurred for purposes other than major surgery procedures.

[3] Ratios of effective number of beds per 1000 residents are based on use of Manitoba hospital beds and do not include use of out of province beds. Source: Table 3 in Annual Report 1991-92, Manitoba Health Services Commission. Of 3,139 active treatment beds in Winnipeg, 515 (16.4 percent) were allocated to rural areas and 2,527 (80.5 percent) were allocated to Winnipeg. This produced a total of 3,150 effective active and extended treatment beds available to non-Winnipeg residents and 3,239 active and extended treatment beds available to Winnipeg residents.

[4] An episode of hospital care represents continuous use of hospital care that may include one or more transfers between facilities.

TABLE 3 (cont'd)

REGIONAL USE OF HOSPITAL RESOURCES:

USE OF ALL HOSPITAL CARE

1991/92

	Central	Eastman	Interlake	Norman	Parklands	Thompson	Westman	Winnipeg	Non-Winnipeg Comparison	Manitoba
Number of hospital separations per 1000 residents	178	177	178	261	219	286	188	135	196	161
Average length of stay per hospital separation	8.9	8.0	8.5	7.0	9.3	5.2	9.8	13.7	8.5	10.9
Number of days of hospital care per 1000 residents	1,290	1,293	1,270	1,934	1,562	2,206	1,391	1,461	1,415	1,441

TABLE 4

REGIONAL USE OF HOSPITAL RESOURCES:[1]

USE OF ALL HOSPITAL CARE BY INPATIENT[2] VERSUS SURGICAL OUTPATIENT[3] STATUS

1991/92

	TYPE OF CARE	Central	Eastman	Interlake	Norman	Parklands	Thompson	Westman	Winnipeg	Non-Winnipeg Comparison	Manitoba
Number of residents		94,484	85,180	71,936	24,952	46,056	45,019	117,724	655,055	485,351	1,140,406
Number of persons hospitalized per 1000 residents	INPATIENT	102	99	100	144	124	162	107	78	111	92
	SURG OUTPT	25	25	26	30	20	20	24	27	24	26
Number of hospital separations per 1000 residents	INPATIENT	151	151	150	228	196	269	161	105	170	133
	SURG OUTPT	26	26	28	33	21	21	26	30	26	28
	TOTAL	178	177	178	261	219	286	188	135	196	161
Average length of stay per hospital separation	INPATIENT	8.9	8.0	8.5	7.0	9.3	5.2	9.8	13.7	8.5	10.9
	SURG OUTPT	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	AVERAGE	8.9	8.0	8.5	7.0	9.3	5.2	9.8	13.7	8.5	10.9

[1] Population-based rates (i.e. those measuring events per 1000 residents) have been age- and sex-adjusted using Manitoba population rates and an indirect method of standardization. Due to rounding, column totals may not equal overall totals.

[2] Inpatient care refers to the 151,444 hospital separations with lengths of stay of one day or more made by Manitoba residents at hospitals both in and out of province.

[3] Surgical outpatient care refers to the 31,970 outpatient contacts for major day surgery procedures made by Manitoba residents at hospitals located in the province. By definition, these contacts have 0 day lengths of stay. The category excludes outpatient contacts for other purposes, which are not reliably recorded across hospitals.

TABLE 4 (cont'd.)

REGIONAL USE OF HOSPITAL RESOURCES:

USE OF ALL HOSPITAL CARE BY INPATIENT VERSUS SURGICAL OUTPATIENT STATUS

1991/92

	TYPE OF CARE	Central	Eastman	Interlake	Norman	Parklands	Thompson	Westman	Winnipeg	Non-Winnipeg Comparison	Manitoba
Number of days of hospital care per 1000 residents	INPATIENT	1,290	1,293	1,270	1,934	1,562	2,206	1,391	1,461	1,415	1,441
	SURG OUTPT	0	0	0	0	0	0	0	0	0	0
	TOTAL	1,290	1,293	1,270	1,934	1,562	2,206	1,391	1,461	1,415	1,441

TABLE 5

REGIONAL USE OF HOSPITAL RESOURCES:[1]

USE OF INPATIENT CARE[2] BY SHORT[3] VERSUS LONG[4] STAY

1991/92

	TYPE OF CARE	Central	Eastman	Interlake	Norman	Parklands	Thompson	Westman	Winnipeg	Non-Winnipeg Comparison	Manitoba
Number of residents		94,484	85,180	71,936	24,952	46,056	45,019	117,724	655,055	485,351	1,140,406
Number of persons hospitalized per 1000 residents	SHORT	101	98	99	142	123	159	106	75	110	90
	LONG	2	2	2	3	3	2	2	3	2	3
Number of hospital separations per 1000 residents	SHORT	148	148	148	224	194	264	159	101	168	130
	LONG	3	2	2	3	3	3	2	4	3	3
	TOTAL	151	151	150	228	196	269	161	105	170	133
Average length of stay per hospital separation	SHORT	6.3	6.1	6.4	5.4	6.3	4.4	6.6	7.3	6.1	6.6
	LONG	151.3	139.1	141.8	163.2	164.1	177.3	176.2	194.8	159.3	182.5
	AVERAGE	8.9	8.0	8.5	7.0	9.3	5.2	9.8	13.7	8.5	10.9
Number of days of hospital care per 1000 residents	SHORT	919	947	938	1,355	1,104	1,540	982	743	1,016	861
	LONG	378	330	328	533	479	502	428	719	402	580
	TOTAL	1,290	1,293	1,270	1,934	1,562	2,206	1,391	1,461	1,415	1,441

[1] Population-based rates (i.e. those measuring events per 1000 residents) have been age- and sex-adjusted using Manitoba population rates and an indirect method of standardization. Due to rounding, column totals may not equal overall totals.

[2] Inpatient care refers to the 151,444 hospital separations with lengths of stay of one day or more made by Manitoba residents at hospitals both in and out of province.

[3] Short stay care refers to the 147,817 separations with lengths of stay ranging from 1 to 59 days.

[4] Long stay care refers to the 3,627 separations lasting 60 days or longer.

TABLE 6

REGIONAL USE OF HOSPITAL RESOURCES:[1]

USE OF INPATIENT CARE[2] BY LOCATION - IN PROVINCE VERSUS OUT OF PROVINCE

1991/92

	TYPE OF CARE	Central	Eastman	Interlake	Norman	Parklands	Thompson	Westman	Winnipeg	Non-Winnipeg Comparison	Manitoba
Number of residents		94,484	85,180	71,936	24,952	46,056	45,019	117,724	655,055	485,351	1,140,406
Number of persons hospitalized per 1000 residents	IN PROV	121	117	120	162	134	173	124	99	128	111
	OUT OF PROV	2	2	2	5	9	2	4	2	3	3
Number of hospital separations per 1000 residents	IN PROV	176	174	176	254	209	284	183	132	192	158
	OUT OF PROV	2	3	2	6	11	2	5	3	4	3
	TOTAL	178	177	178	261	219	286	188	135	196	161
Average length of stay per hospital separation	IN PROV	9.0	8.0	8.5	7.0	9.5	5.2	9.9	13.9	8.5	11.0
	OUT OF PROV	4.9	5.2	7.6	6.2	5.8	4.0	5.7	6.3	5.7	6.0
	AVERAGE	8.9	8.0	8.5	7.0	9.3	5.2	9.8	13.7	8.5	10.9
Number of days of hospital care per 1000 residents	IN PROV	1,280	1,279	1,253	1,889	1,508	2,203	1,366	1,445	1,392	1,422
	OUT OF PROV	10	14	17	42	58	11	26	16	23	19
	TOTAL	1,290	1,293	1,270	1,934	1,562	2,206	1,391	1,461	1,415	1,441

[1] Population-based rates (i.e. those measuring events per 1000 residents) have been age- and sex-adjusted using Manitoba population rates and an indirect method of standardization. Due to rounding, column totals may not equal overall totals.

[2] Inpatient care refers to the 151,444 hospital separations with lengths of stay of one day or more made by Manitoba residents at hospitals both in and out of province.

TABLE 7

REGIONAL USE OF HOSPITAL RESOURCES:[1]

USE OF SURGICAL OUTPATIENT CARE[2] BY LOCATION OF SERVICE[3]

1991/92

	LOCATION OF CARE	Central	Eastman	Interlake	Norman	Parklands	Thompson	Westman	Winnipeg	Non-Winnipeg Comparison	Manitoba
Number of residents		94,484	85,180	71,936	24,952	46,056	45,019	117,724	655,055	485,351	1,140,406
Number of persons hospitalized per 1000 residents	IN REGION	11	6	5	22	11	11	20	27	12	21
	OUT: WPG	13	18	21	8	7	9	3	N/A	11	5
	OUT: NOT WPG	1	<1	<1	1	2	1	<1	<1	1	<1
Number of hospital separations per 1000 residents	IN REGION	11	6	5	24	12	11	22	29	13	22
	OUT: WPG	14	19	23	8	7	9	4	N/A	12	5
	OUT: NOT WPG	1	1	<1	1	2	1	<1	<1	1	<1
	TOTAL	26	26	28	33	21	21	26	30	26	28

[1] Population-based rates (i.e. those measuring events per 1000 residents) have been age- and sex-adjusted using Manitoba population rates and an indirect method of standardization. Due to rounding, column totals may not equal overall totals.

[2] Surgical outpatient care refers to the 31,970 outpatient contacts for major day surgery procedures made by Manitoba residents at hospitals located in the province. The category excludes outpatient contacts for purposes other than for major day surgery procedures, which are not reliably recorded across hospitals. Length of stay is not reported because these contacts have 0 day lengths of stay by definition.

[3] Location of care refers to the site of care delivery in relation to patient region of residence.

4.3 Short Stay Inpatient Care

TABLE 8

REGIONAL USE OF HOSPITAL RESOURCES:[1]

USE OF SHORT STAY INPATIENT CARE[2]

1991/92

	Central	Eastman	Interlake	Norman	Parklands	Thompson	Westman	Winnipeg	Non-Winnipeg Comparison	Manitoba
Number of residents	94,484	85,180	71,936	24,952	46,056	45,019	117,724	655,055	485,351	1,140,406
Effective number of hospital beds per 1000 residents[3]	5.8	4.1	4.6	8.6	8.3	6.0	7.7	5.1	6.2	5.6
Number of persons hospitalized per 1000 residents	101	98	99	142	123	159	106	75	110	90
Number of hospital separations per 1000 residents	148	148	148	224	194	264	159	101	168	130
Average length of stay per hospital separation	6.3	6.1	6.4	5.4	6.3	4.4	6.6	7.3	6.1	6.6

[1] All rates (i.e. except for effective number of beds and average length of stay) have been age- and sex-adjusted using Manitoba population rates and an indirect method of standardization.

[2] Short stay inpatient care refers to the 147,817 separations with lengths of stay ranging from 1 to 59 days made by Manitoba residents at hospitals both in and out of province.

[3] Ratios of effective number of beds per 1000 residents are based on use of Manitoba hospital beds and do not include use of out of province beds. Source: Table 3 in Annual Report 1991-92, Manitoba Health Services Commission. Of 3,139 active treatment beds in Winnipeg, 515 (16.4 percent) were allocated to rural areas and 2,527 (80.5 percent) were allocated to Winnipeg. This produced a total of 3,150 effective active and extended treatment beds available to non-Winnipeg residents and 3,239 active and extended treatment beds available to Winnipeg residents.

TABLE 8 (cont'd.)

REGIONAL USE OF HOSPITAL RESOURCES:

USE OF SHORT STAY INPATIENT CARE

1991/92

	Central	Eastman	Interlake	Norman	Parklands	Thompson	Westman	Winnipeg	Non-Winnipeg Comparison	Manitoba
Number of days of hospital care per 1000 residents	919	947	938	1,355	1,104	1,540	982	743	1,016	861

TABLE 9

REGIONAL USE OF HOSPITAL RESOURCES:

USE OF SHORT STAY INPATIENT CARE[1] BY AGE & SEX OF RESIDENTS[2]

1991/92

	AGE & SEX GROUP	Central	Eastman	Interlake	Norman	Parklands	Thompson	Westman	Winnipeg	Non-Winnipeg Comparison	Manitoba
Number of residents		94,484	85,180	71,936	24,952	46,056	45,019	117,724	655,055	485,351	1,140,406
Number of persons hospitalized per 1000 residents	MALES										
	0-14	60	52	51	99	105	100	78	38	72	54
	15-64	58	57	58	97	70	92	59	44	64	53
	65-74	200	181	221	270	208	222	210	165	207	184
	75+	317	326	327	373	341	407	337	260	333	296
	FEMALES										
	0-14	52	42	45	81	97	88	63	29	62	45
	15-64	125	124	119	158	146	194	121	94	133	110
	65-74	155	158	160	234	184	251	170	118	169	138
	75+	270	279	299	310	305	388	288	192	289	232
Number of hospital separations per 1000 residents	MALES										
	0-14	82	72	65	140	174	155	99	47	102	73
	15-64	81	79	81	139	95	134	82	57	90	71
	65-74	337	298	385	546	354	458	375	248	362	299
	75+	571	608	599	739	674	1,002	671	404	640	521
	FEMALES										
	0-14	71	56	56	114	161	131	84	36	87	60
	15-64	169	177	164	238	217	304	168	123	190	150
	65-74	242	281	262	425	316	563	289	169	287	217
	75+	477	515	525	579	565	990	498	269	518	372

[1] Short stay inpatient care refers to the 147,817 separations with lengths of stay ranging from 1 to 59 days made by Manitoba residents at hospitals both in and out of province.

[2] Age- and sex-specific rates are crude rates (i.e. not age- and sex-adjusted) and are calculated using the relevant age- and sex-specific population as the denominator. Because the denominator for each category is not the total population, the rates may be used for direct comparison but cannot be summed.

TABLE 9 (cont'd.)

REGIONAL USE OF HOSPITAL RESOURCES:

USE OF SHORT STAY INPATIENT CARE BY AGE & SEX OF RESIDENTS

1991/92

	AGE & SEX GROUP	Central	Eastman	Interlake	Norman	Parklands	Thompson	Westman	Winnipeg	Non-Winnipeg Comparison	Manitoba
Average length of stay per hospital separation	MALES										
	0-14	3.4	3.9	2.9	3.6	4.6	3.6	3.0	3.8	3.6	3.7
	15-64	5.3	5.8	6.1	5.2	4.9	4.9	5.5	6.9	5.4	6.1
	65-74	8.0	8.6	8.4	8.2	8.1	8.4	8.5	9.8	8.3	9.0
	75+	9.6	9.6	9.5	9.1	9.2	6.5	9.6	11.3	9.4	10.1
	FEMALES										
	0-14	3.3	3.8	3.2	3.9	4.7	3.7	3.1	4.1	3.7	3.8
	15-64	4.5	4.4	4.6	4.2	4.4	4.0	4.6	5.0	4.4	4.7
	65-74	8.3	9.0	8.7	8.3	7.7	6.2	8.1	10.6	8.2	9.3
	75+	10.9	10.1	9.6	10.2	9.2	7.5	10.1	13.1	10.0	11.3
Number of days of hospital care per 1000 residents	MALES										
	0-14	280	280	189	508	807	566	293	179	365	267
	15-64	430	458	487	738	458	684	441	397	486	434
	65-74	2,704	2,555	3,238	4,454	2,880	3,825	3,182	2,423	3,014	2,690
	75+	5,463	5,830	5,703	6,713	6,165	6,451	6,422	4,558	6,011	5,280
	FEMALES										
	0-14	233	215	181	447	760	490	263	147	319	229
	15-64	760	779	728	1,048	917	1,345	759	614	839	704
	65-74	2,018	2,522	2,272	3,541	2,430	3,487	2,352	1,790	2,364	2,022
	75+	5,175	5,202	5,019	5,940	5,206	7,453	5,017	3,515	5,161	4,201

TABLE 10

REGIONAL USE OF HOSPITAL RESOURCES:[1]

USE OF SHORT STAY INPATIENT CARE[2] BY PATIENT COMORBIDITY[3]

1991/92

	NUMBER OF COMORBID CONDITIONS	Central	Eastman	Interlake	Norman	Parklands	Thompson	Westman	Winnipeg	Non-Winnipeg Comparison	Manitoba
Number of residents		94,484	85,180	71,936	24,952	46,056	45,019	117,724	655,055	485,351	1,140,406
Number of persons hospitalized per 1000 residents	NONE	87	84	85	122	107	138	93	61	96	76
	1 COND	11	10	12	18	13	16	12	9	12	10
	2 COND	7	7	8	8	9	14	7	5	7	6
	3+ COND	4	4	4	4	4	5	3	4	4	4
Number of hospital separations per 1000 residents	NONE	117	117	113	172	156	209	128	76	133	100
	1 COND	15	15	17	30	19	23	17	12	17	14
	2 COND	10	11	11	12	13	19	10	7	11	9
	3+ COND	6	6	7	10	7	9	6	7	7	7
	TOTAL	148	148	148	224	194	264	159	101	168	130
Average length of stay per hospital separation	NONE	5.5	5.3	5.4	4.7	5.4	3.9	5.8	6.1	5.3	5.6
	1 COND	8.2	8.5	8.3	7.7	8.0	7.3	8.5	9.9	8.2	9.0
	2 COND	9.8	9.2	9.9	8.9	9.4	8.6	9.8	10.9	9.6	10.2
	3+ COND	11.6	11.2	12.1	10.2	12.2	11.9	12.4	13.1	11.9	12.6
	AVERAGE	6.3	6.1	6.4	5.4	6.3	4.4	6.6	7.3	6.1	6.6

[1] Population-based rates (i.e. those measuring events per 1000 residents) have been age- and sex-adjusted using Manitoba population rates and an indirect method of standardization. Due to rounding, column totals may not equal overall totals.

[2] Short stay inpatient care refers to the 147,817 separations with lengths of stay ranging from 1 to 59 days made by Manitoba residents at hospitals both in and out of province.

[3] Comorbidity refers to medical conditions that exist in addition to the main reason for hospitalization; the type and number of comorbid conditions provide an indication of patients' health status and risk of death (Charlson et al. 1986).

TABLE 10 (cont'd.)

REGIONAL USE OF HOSPITAL RESOURCES:

USE OF SHORT STAY INPATIENT CARE BY PATIENT COMORBIDITY

1991/92

	NUMBER OF COMORBID CONDITIONS	Central	Eastman	Interlake	Norman	Parklands	Thompson	Westman	Winnipeg	Non-Winnipeg Comparison	Manitoba
Number of days of hospital care per 1000 residents	NONE	624	645	609	888	769	1,012	687	462	695	561
	1 COND	125	129	139	252	144	222	135	115	141	126
	2 COND	97	101	108	113	120	179	96	78	105	90
	3+ COND	74	70	82	100	81	119	69	89	76	83
	TOTAL	919	947	938	1,355	1,104	1,540	982	743	1,016	861

TABLE 11

REGIONAL USE OF HOSPITAL RESOURCES:[1]

USE OF SHORT STAY INPATIENT CARE[2] BY LEVEL OF COMORBIDITY AND COMPLICATIONS[3]

1991/92

	LEVEL OF COMPLEXITY	Central	Eastman	Interlake	Norman	Parklands	Thompson	Westman	Winnipeg	Non-Winnipeg Comparison	Manitoba
Number of residents		94,484	85,180	71,936	24,952	46,056	45,019	117,724	655,055	485,351	1,140,406
Number of persons hospitalized per 1000 residents	LOW	86	83	83	124	106	129	93	58	94	73
	MODERATE	19	19	20	23	26	47	19	17	22	19
	HIGH	8	8	9	10	7	17	8	9	8	9
Number of hospital separations per 1000 residents	LOW	113	112	110	174	150	187	126	70	129	95
	MODERATE	27	27	27	37	37	62	26	21	30	25
	HIGH	9	9	10	11	8	19	9	10	9	10
	TOTAL	148	148	148	224	194	264	159	101	168	130
Average length of stay per hospital separation	LOW	5.2	5.0	5.0	4.6	5.2	3.6	5.5	5.4	5.0	5.1
	MODERATE	8.4	8.6	9.1	7.5	8.3	6.4	9.0	9.7	8.4	9.0
	HIGH	14.0	13.6	14.5	13.0	14.9	11.4	14.5	16.1	13.9	15.2
	AVERAGE	6.3	6.1	6.4	5.4	6.3	4.4	6.6	7.3	6.1	6.6

[1] Population-based rates (i.e. those measuring events per 1000 residents) have been age- and sex-adjusted using Manitoba population rates and an indirect method of standardization. Due to rounding, column totals may not equal overall totals.

[2] Short stay inpatient care refers to the 147,817 separations with lengths of stay ranging from 1 to 59 days made by Manitoba residents at hospitals both in and out of province.

[3] Comorbidity and complications affect the complexity of hospital care and the resources required to treat given patients. The RDRG program was used to classify patients into three groups based on their expected resource use.

TABLE 11 (cont'd.)

REGIONAL USE OF HOSPITAL RESOURCES:

USE OF SHORT STAY INPATIENT CARE BY LEVEL OF COMORBIDITY AND COMPLICATIONS

1991/92

	LEVEL OF COMPLEXITY	Central	Eastman	Interlake	Norman	Parklands	Thompson	Westman	Winnipeg	Non-Winnipeg Comparison	Manitoba
Number of days of hospital care per 1000 residents	LOW	583	580	546	882	711	822	649	379	638	489
	MODERATE	219	237	248	301	288	497	219	210	249	227
	HIGH	119	128	145	152	116	253	123	155	132	145
	TOTAL	919	947	938	1,355	1,104	1,540	982	743	1,016	861

TABLE 12

REGIONAL USE OF HOSPITAL RESOURCES:[1]

USE OF SHORT STAY INPATIENT CARE[2] BY LENGTH OF STAY

1991/92

	LENGTH OF STAY	Central	Eastman	Interlake	Norman	Parklands	Thompson	Westman	Winnipeg	Non-Winnipeg Comparison	Manitoba
Number of residents		94,484	85,180	71,936	24,952	46,056	45,019	117,724	655,055	485,351	1,140,406
Number of persons hospitalized per 1000 residents	1-8 DAYS	89	86	87	125	113	140	93	61	98	76
	9-14 DAYS	14	14	15	19	16	22	15	11	15	13
	15-22 DAYS	6	7	7	10	7	11	7	6	7	6
	23-59 DAYS	6	6	6	7	6	9	6	6	6	6
Number of hospital separations per 1000 residents	1-8 DAYS	120	117	117	181	163	213	128	76	136	102
	9-14 DAYS	16	16	17	23	19	25	17	12	17	14
	15-22 DAYS	6	8	7	11	8	12	8	6	8	7
	23-59 DAYS	7	6	7	8	6	10	7	7	7	7
	TOTAL	148	148	148	224	194	264	159	101	168	130
Average length of stay per hospital separation	1-8 DAYS	3.4	3.3	3.3	3.2	3.5	2.9	3.5	3.4	3.3	3.4
	9-14 DAYS	11.0	11.0	11.0	10.9	11.0	10.9	11.0	11.1	11.0	11.0
	15-22 DAYS	18.1	17.8	18.0	17.9	17.9	17.8	17.8	17.9	17.9	17.9
	23-59 DAYS	33.9	34.8	35.1	33.8	34.6	33.4	34.4	35.1	34.4	34.8
	AVERAGE	6.3	6.1	6.4	5.4	6.3	4.4	6.6	7.3	6.1	6.6

[1] Population-based rates (i.e. those measuring events per 1000 residents) have been age- and sex-adjusted using Manitoba population rates and an indirect method of standardization. Due to rounding, column totals may not equal overall totals.

[2] Short stay inpatient care refers to the 147,817 separations with lengths of stay ranging from 1 to 59 days made by Manitoba residents at hospitals both in and out of province.

TABLE 12 (cont'd.)

REGIONAL USE OF HOSPITAL RESOURCES:

USE OF SHORT STAY INPATIENT CARE BY LENGTH OF STAY

1991/92

	LENGTH OF STAY	Central	Eastman	Interlake	Norman	Parklands	Thompson	Westman	Winnipeg	Non-Winnipeg Comparison	Manitoba
Number of days of hospital care per 1000 residents	1-8 DAYS	412	398	387	606	556	673	432	258	455	341
	9-14 DAYS	171	181	186	253	208	272	188	133	192	158
	15-22 DAYS	117	141	129	198	140	216	141	112	139	124
	23-59 DAYS	221	225	237	279	222	328	227	241	232	237
	TOTAL	919	947	938	1,355	1,104	1,540	982	743	1,016	861

TABLE 13

REGIONAL USE OF HOSPITAL RESOURCES:[1]

USE OF SHORT STAY INPATIENT CARE[2] BY INTENSITY OF RESOURCE USE[3]

1991/92

	LEVEL OF INTENSITY	Central	Eastman	Interlake	Norman	Parklands	Thompson	Westman	Winnipeg	Non-Winnipeg Comparison	Manitoba
Number of residents		94,484	85,180	71,936	24,952	46,056	45,019	117,724	655,055	485,351	1,140,406
Number of persons hospitalized per 1000 residents	VERY LOW	23	24	21	30	26	37	22	18	25	21
	INTERMEDIATE	79	76	79	116	100	126	85	56	87	69
	VERY HIGH	5	5	7	7	5	8	6	6	6	6
Number of hospital separations per 1000 residents	VERY LOW	27	30	25	39	33	50	26	21	31	25
	INTERMEDIATE	116	113	115	179	155	205	126	74	131	98
	VERY HIGH	5	6	7	7	5	9	6	6	6	6
	TOTAL	148	148	148	224	194	264	159	101	168	130
Average length of stay per hospital separation	VERY LOW	3.1	2.7	2.8	2.8	3.4	3.0	3.3	2.7	3.0	2.9
	INTERMEDIATE	6.6	6.6	6.6	5.8	6.4	4.6	6.7	7.9	6.4	7.0
	VERY HIGH	15.2	15.3	15.4	13.9	14.2	15.4	15.2	16.1	15.1	15.7
	AVERAGE	6.3	6.1	6.4	5.4	6.3	4.4	6.6	7.3	6.1	6.6

[1] Population-based rates (i.e. those measuring events per 1000 residents) have been age- and sex-adjusted using Manitoba population rates and an indirect method of standardization. Due to rounding, column totals may not equal overall totals.

[2] Short stay inpatient care refers to the 147,817 separations with lengths of stay ranging from 1 to 59 days made by Manitoba residents at hospitals both in and out of province.

[3] DRG weights were used to classify cases into the following categories according to their intensity of resource use: the lowest ten percent of cases, the highest five percent of cases, with remaining cases classified as intermediate.

TABLE 13 (cont'd.)

REGIONAL USE OF HOSPITAL RESOURCES:

USE OF SHORT STAY INPATIENT CARE BY INTENSITY OF RESOURCE USE

1991/92

	LEVEL OF INTENSITY	Central	Eastman	Interlake	Norman	Parklands	Thompson	Westman	Winnipeg	Non-Winnipeg Comparison	Manitoba
Number of days of hospital care per 1000 residents	VERY LOW	84	83	71	113	110	160	82	57	93	72
	INTERMEDIATE	754	776	755	1,134	926	1,201	805	583	830	690
	VERY HIGH	81	87	112	105	75	149	95	103	94	99
	TOTAL	919	947	938	1,355	1,104	1,540	982	743	1,016	861

TABLE 14

REGIONAL USE OF HOSPITAL RESOURCES:[1]

USE OF SHORT STAY INPATIENT CARE[2] BY LEVEL OF CARE RECEIVED[3]

1991/92

	LEVEL OF CARE	Central	Eastman	Interlake	Norman	Parklands	Thompson	Westman	Winnipeg	Non-Winnipeg Comparison	Manitoba
Number of residents		94,484	85,180	71,936	24,952	46,056	45,019	117,724	655,055	485,351	1,140,406
Number of persons hospitalized per 1000 residents	TEACHING	19	34	33	21	16	38	8	39	22	32
	URBAN	13	17	21	9	10	15	49	35	24	31
	MAJOR RURAL	47	23	18	114	73	76	2	1	36	16
	OTHER RURAL	31	35	39	6	33	59	52	1	40	18
	CHRONIC	<1	<1	<1	<1	<1	1	<1	1	<1	1
	OUT OF PROV	2	2	2	5	9	2	4	2	3	3
Number of hospital separations per 1000 residents	TEACHING	23	43	42	25	19	48	10	50	28	41
	URBAN	15	20	24	11	10	17	61	44	29	38
	MAJOR RURAL	63	29	24	167	103	102	3	1	48	21
	OTHER RURAL	43	52	55	8	50	87	75	2	57	26
	CHRONIC	<1	<1	<1	<1	<1	1	<1	1	<1	1
	OUT OF PROV	2	3	2	6	11	2	5	3	4	3
	TOTAL	148	148	148	224	194	264	159	101	168	130

[1] Population-based rates (i.e. those measuring events per 1000 residents) have been age- and sex-adjusted using Manitoba population rates and an indirect method of standardization. Due to rounding, column totals may not equal overall totals.

[2] Short stay inpatient care refers to the 147,817 separations with lengths of stay ranging from 1 to 59 days made by Manitoba residents at hospitals both in and out of province.

[3] Hospitals were grouped according to their size, level of specialization, and environment in order to permit analyses by level of hospital care. Further details are given in Section 2.2 and Appendix A.

TABLE 13 (cont'd.)

REGIONAL USE OF HOSPITAL RESOURCES:

USE OF SHORT STAY INPATIENT CARE BY INTENSITY OF RESOURCE USE

1991/92

	LEVEL OF INTENSITY	Central	Eastman	Interlake	Norman	Parklands	Thompson	Westman	Winnipeg	Non-Winnipeg Comparison	Manitoba
Number of days of hospital care per 1000 residents	VERY LOW	84	83	71	113	110	160	82	57	93	72
	INTERMEDIATE	754	776	755	1,134	926	1,201	805	583	830	690
	VERY HIGH	81	87	112	105	75	149	95	103	94	99
	TOTAL	919	947	938	1,355	1,104	1,540	982	743	1,016	861

TABLE 14

REGIONAL USE OF HOSPITAL RESOURCES:[1]

USE OF SHORT STAY INPATIENT CARE[2] BY LEVEL OF CARE RECEIVED[3]

1991/92

	LEVEL OF CARE	Central	Eastman	Interlake	Norman	Parklands	Thompson	Westman	Winnipeg	Non-Winnipeg Comparison	Manitoba
Number of residents		94,484	85,180	71,936	24,952	46,056	45,019	117,724	655,055	485,351	1,140,406
Number of persons hospitalized per 1000 residents	TEACHING	19	34	33	21	16	38	8	39	22	32
	URBAN	13	17	21	9	10	15	49	35	24	31
	MAJOR RURAL	47	23	18	114	73	76	2	1	36	16
	OTHER RURAL	31	35	39	6	33	59	52	1	40	18
	CHRONIC	<1	<1	<1	<1	<1	1	<1	1	<1	1
	OUT OF PROV	2	2	2	5	9	2	4	2	3	3
Number of hospital separations per 1000 residents	TEACHING	23	43	42	25	19	48	10	50	28	41
	URBAN	15	20	24	11	10	17	61	44	29	38
	MAJOR RURAL	63	29	24	167	103	102	3	1	48	21
	OTHER RURAL	43	52	55	8	50	87	75	2	57	26
	CHRONIC	<1	<1	<1	<1	<1	1	<1	1	<1	1
	OUT OF PROV	2	3	2	6	11	2	5	3	4	3
	TOTAL	148	148	148	224	194	264	159	101	168	130

[1] Population-based rates (i.e. those measuring events per 1000 residents) have been age- and sex-adjusted using Manitoba population rates and an indirect method of standardization. Due to rounding, column totals may not equal overall totals.

[2] Short stay inpatient care refers to the 147,817 separations with lengths of stay ranging from 1 to 59 days made by Manitoba residents at hospitals both in and out of province.

[3] Hospitals were grouped according to their size, level of specialization, and environment in order to permit analyses by level of hospital care. Further details are given in Section 2.2 and Appendix A.

TABLE 14 (cont'd.)

REGIONAL USE OF HOSPITAL RESOURCES:

USE OF SHORT STAY INPATIENT CARE BY LEVEL OF CARE RECEIVED

1991/92

	LEVEL OF CARE	Central	Eastman	Interlake	Norman	Parklands	Thompson	Westman	Winnipeg	Non-Winnipeg Comparison	Manitoba
Average length of stay per hospital separation	TEACHING	6.7	6.5	7.2	8.3	8.3	7.3	8.3	6.8	7.2	6.9
	URBAN	6.1	5.9	6.9	6.5	7.3	5.6	7.0	7.8	6.7	7.4
	MAJOR RURAL	6.1	6.0	7.2	4.9	6.0	4.3	6.1	5.3	5.7	5.7
	OTHER RURAL	6.5	6.0	5.2	2.7	6.2	2.2	6.2	4.0	5.7	5.6
	CHRONIC	24.8	32.6	18.6	28.2	15.3	24.1	19.5	18.3	23.1	18.9
	OUT OF PROV	4.9	5.2	6.8	5.7	5.4	4.0	5.5	5.8	5.4	5.6
	TOTAL	6.3	6.1	6.4	5.4	6.3	4.4	6.6	7.3	6.1	6.6
Number of days of hospital care per 1000 residents	TEACHING	153	289	292	232	140	438	81	340	198	279
	URBAN	91	123	168	77	69	127	398	345	195	281
	MAJOR RURAL	377	186	172	932	552	586	15	6	270	120
	OTHER RURAL	272	327	286	23	281	272	426	7	320	145
	CHRONIC	7	7	8	10	1	30	3	27	6	18
	OUT OF PROV	10	14	15	39	54	11	25	15	22	18
	TOTAL	919	947	938	1,355	1,104	1,540	982	743	1,016	861

TABLE 15

REGIONAL USE OF HOSPITAL RESOURCES:[1]

USE OF SHORT STAY INPATIENT CARE[2] BY LOCATION OF SERVICE[3]

1991/92

	LOCATION OF CARE	Central	Eastman	Interlake	Norman	Parklands	Thompson	Westman	Winnipeg	Non-Winnipeg Comparison	Manitoba
Number of residents		94,484	85,180	71,936	24,952	46,056	45,019	117,724	655,055	485,351	1,140,406
Number of persons hospitalized per 1000 residents	IN REGION	73	53	56	118	97	119	93	72	80	75
	OUT: WPG	30	50	53	28	19	50	10	N/A	32	14
	OUT: NOT WPG	9	7	4	11	20	11	8	5	9	6
Number of hospital separations per 1000 residents	IN REGION	101	75	76	175	146	182	136	96	116	104
	OUT: WPG	36	63	66	35	23	64	13	N/A	40	17
	OUT: NOT WPG	12	10	6	14	25	15	10	6	12	8
	TOTAL	148	148	148	224	194	264	159	101	168	130
Average length of stay per hospital separation	IN REGION	6.3	6.1	5.9	4.9	6.1	3.5	6.6	7.4	5.9	6.7
	OUT: WPG	6.5	6.4	7.1	8.0	7.9	7.1	8.1	N/A	7.0	7.0
	OUT: NOT WPG	5.8	5.1	5.7	4.7	6.1	3.6	5.4	5.1	5.4	5.3
	AVERAGE	6.3	6.1	6.4	5.4	6.3	4.4	6.6	7.3	6.1	6.6

[1] Population-based rates (i.e. those measuring events per 1000 residents) have been age- and sex-adjusted using Manitoba population rates and an indirect method of standardization. Due to rounding, column totals may not equal overall totals.

[2] Short stay inpatient care refers to the 147,817 separations with lengths of stay ranging from 1 to 59 days made by Manitoba residents at hospitals both in and out of province.

[3] Location of service refers to the site of care delivery in relation to patient region of residence.

TABLE 15 (cont'd.)

REGIONAL USE OF HOSPITAL RESOURCES:

USE OF SHORT STAY INPATIENT CARE BY LOCATION OF SERVICE

1991/92

	LOCATION OF CARE	Central	Eastman	Interlake	Norman	Parklands	Thompson	Westman	Winnipeg	Non-Winnipeg Comparison	Manitoba
Number of days of hospital care per 1000 residents	IN REGION	621	474	442	965	803	848	831	714	678	699
	OUT: WPG	234	407	459	303	169	542	99	N/A	276	118
	OUT: NOT WPG	66	51	31	73	136	68	49	30	62	44
	TOTAL	919	947	938	1,355	1,104	1,540	982	743	1,016	861

TABLE 16

REGIONAL USE OF HOSPITAL RESOURCES:[1]

USE OF SHORT STAY INPATIENT CARE[2] BY TYPE OF CARE[3]

1991/92

	TYPE OF CARE	Central	Eastman	Interlake	Norman	Parklands	Thompson	Westman	Winnipeg	Non-Winnipeg Comparison	Manitoba
Number of residents		94,484	85,180	71,936	24,952	46,056	45,019	117,724	655,055	485,351	1,140,406
Number of persons hospitalized per 1000 residents	ADULT SURG	30	29	30	38	27	39	27	27	30	28
	ADULT MED	47	48	52	79	61	89	53	29	55	40
	PSYCHIATRIC	3	3	3	5	4	3	3	3	3	3
	OBSTETRICAL	19	19	16	20	19	28	16	15	19	17
	PEDIATRIC	12	10	11	20	22	21	16	7	15	11
Number of hospital separations per 1000 residents	ADULT SURG	32	32	32	41	30	42	30	29	32	30
	ADULT MED	72	75	78	125	95	151	83	40	85	59
	PSYCHIATRIC	3	4	3	6	5	4	4	4	4	4
	OBSTETRICAL	24	25	20	28	26	41	20	20	25	22
	PEDIATRIC	17	14	13	28	37	32	20	9	21	15
	TOTAL	148	148	148	224	194	264	159	101	168	130

[1] Population-based rates (i.e. those measuring events per 1000 residents) have been age- and sex-adjusted using Manitoba population rates and an indirect method of standardization. Due to rounding, column totals may not equal overall totals.

[2] Short stay inpatient care refers to the 147,817 separations with lengths of stay ranging from 1 to 59 days made by Manitoba residents at hospitals both in and out of province.

[3] Inpatient care was categorized into relevant clinical categories of care. Adult surgical care includes inpatient, but not outpatient surgery. Pediatric care includes both surgical and medical types of care. Rates of psychiatric care do not include separations from Eden, Selkirk and Brandon Mental Health Centres; consequently they underreport psychiatric utilization by non-Winnipeg residents.

TABLE 16 (cont'd.)

REGIONAL USE OF HOSPITAL RESOURCES:

USE OF SHORT STAY INPATIENT CARE BY TYPE OF CARE

1991/92

	TYPE OF CARE	Central	Eastman	Interlake	Norman	Parklands	Thompson	Westman	Winnipeg	Non-Winnipeg Comparison	Manitoba
Average length of stay per hospital separation	ADULT SURG	7.4	7.2	7.8	6.9	7.5	7.0	8.2	7.9	7.6	7.8
	ADULT MED	7.3	7.1	6.9	5.8	6.8	4.4	7.3	8.6	6.8	7.5
	PSYCHIATRIC	10.5	10.9	12.4	9.9	8.0	6.3	10.5	18.7	10.2	14.9
	OBSTETRICAL	3.5	3.1	3.1	3.3	3.6	3.6	3.6	3.1	3.4	3.3
	PEDIATRIC	3.4	3.8	3.1	3.8	4.6	3.7	3.0	3.8	3.6	3.7
	AVERAGE	6.3	6.1	6.4	5.4	6.3	4.4	6.6	7.3	6.1	6.6
Number of days of hospital care per 1000 residents	ADULT SURG	229	232	249	304	209	361	227	230	239	234
	ADULT MED	512	546	542	800	605	866	567	348	573	446
	PSYCHIATRIC	36	43	40	65	42	23	44	67	41	56
	OBSTETRICAL	84	77	64	92	95	150	74	61	86	71
	PEDIATRIC	56	54	41	104	170	116	62	35	75	54
	TOTAL	919	947	938	1,355	1,104	1,540	982	743	1,016	861

TABLE 17

REGIONAL USE OF HOSPITAL RESOURCES:[1]

USE OF SHORT STAY INPATIENT CARE[2] BY DISCRETIONARY NATURE OF SERVICES[3]

1991/92

	DISCRETIONARY NATURE OF SERVICE	Central	Eastman	Interlake	Norman	Parklands	Thompson	Westman	Winnipeg	Non-Winnipeg Comparison	Manitoba
Number of residents		94,484	85,180	71,936	24,952	46,056	45,019	117,724	655,055	485,351	1,140,406
Number of persons hospitalized per 1000 residents	HIGH VAR MED	57	55	59	94	81	104	66	34	67	48
	HIGH VAR SURG	36	33	33	46	35	46	32	31	35	33
	LOW VAR	5	6	7	8	5	8	7	6	6	6
	OBSTETRIC	15	16	13	16	15	25	13	12	16	14
Number of hospital separations per 1000 residents	HIGH VAR MED	86	84	87	146	127	170	99	46	102	71
	HIGH VAR SURG	38	36	36	49	37	50	34	33	38	35
	LOW VAR	6	7	8	10	6	9	8	6	7	6
	OBSTETRIC	19	21	17	22	20	35	17	16	21	18
	TOTAL	148	148	148	224	194	264	159	101	168	130
Average length of stay per hospital separation	HIGH VAR MED	6.5	6.5	6.4	5.4	6.2	4.0	6.6	8.6	6.1	7.0
	HIGH VAR SURG	6.4	6.3	6.8	6.1	6.6	6.4	6.9	6.8	6.6	6.7
	LOW VAR	12.1	11.7	11.7	9.6	11.5	8.9	11.5	13.0	11.5	12.3
	OBSTETRIC	3.2	2.8	2.9	2.8	3.2	3.3	3.3	2.8	3.1	2.9
	AVERAGE	6.3	6.1	6.4	5.4	6.3	4.4	6.6	7.3	6.1	6.6

[1] Population-based rates (i.e. those measuring events per 1000 residents) have been age- and sex-adjusted using Manitoba population rates and an indirect method of standardization. Due to rounding, column totals may not equal overall totals.

[2] Short stay inpatient care refers to the 147,817 separations with lengths of stay ranging from 1 to 59 days made by Manitoba residents at hospitals both in and out of province.

[3] Based on Wennberg's work, we identified three categories of inpatient care: high variation medical conditions, such as pneumonia and gastroenteritis, for which highly variable admission rates exist; surgical conditions, such as cholecystectomy and appendectomy, that show somewhat less variability; and low variation conditions, such as heart attack and hip fracture, which demonstrate relatively stable rates across populations. Further details are given in Section 2.3. Rates of obstetric care reported for the discretionary indicator differ from (and are lower than) those reported for the type of care indicator because in the former, obstetric separations that involve are surgical procedure (e.g. cesarean section) are included in the surgical category.

TABLE 17 (cont'd.)

REGIONAL USE OF HOSPITAL RESOURCES:

USE OF SHORT STAY INPATIENT CARE BY DISCRETIONARY NATURE OF SERVICES

1991/92

	DISCRETIONARY NATURE OF SERVICE	Central	Eastman	Interlake	Norman	Parklands	Thompson	Westman	Winnipeg	Non-Winnipeg Comparison	Manitoba
Number of days of hospital care per 1000 residents	HIGH VAR MED	552	571	556	879	736	907	614	396	626	496
	HIGH VAR SURG	237	230	240	325	227	386	222	225	244	233
	LOW VAR	71	85	93	96	72	93	86	77	83	80
	OBSTETRIC	59	60	48	63	64	115	55	44	64	52
	TOTAL	919	947	938	1,355	1,104	1,540	982	743	1,016	861

TABLE 18

REGIONAL USE OF HOSPITAL RESOURCES:[1]

USE OF SHORT STAY INPATIENT CARE[2] BY TYPE OF CARE[3] AND LOCATION OF SERVICE[4]

1991/92

	TYPE AND LOCATION	Central	Eastman	Interlake	Norman	Parklands	Thompson	Westman	Winnipeg	Non-Winnipeg Comparison	Manitoba
Number of residents		94,484	85,180	71,936	24,952	46,056	45,019	117,724	655,055	485,351	1,140,406
Number of persons hospitalized per 1000 residents	ADULT SURG										
	in region	14	6	5	20	11	16	20	26	13	21
	out: Wpg	14	22	25	16	10	22	6	N/A	15	6
	out: not Wpg	2	1	<1	2	7	2	1	1	2	1
	ADULT MED										
	in region	38	36	39	69	53	74	48	27	46	35
	out: Wpg	8	13	15	11	5	18	3	N/A	9	4
	out: not Wpg	5	4	3	6	8	6	4	3	5	4
	ADULT PSYCH										
	in region	2	2	2	4	3	2	3	3	3	3
	out: Wpg	<1	1	1	<1	<1	<1	<1	N/A	<1	<1
	out: not Wpg	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	PEDIATRIC										
	in region	9	5	6	17	19	17	14	7	11	9
	out: Wpg	3	5	5	3	2	5	1	N/A	3	2
	out: not Wpg	1	1	1	1	3	1	1	1	1	1
	OBSTETRIC										
	in region	13	6	6	17	15	19	15	15	12	14
	out: Wpg	6	13	11	2	2	9	1	N/A	6	3
	out: not Wpg	1	1	<1	2	3	2	1	<1	1	1

[1] Population-based rates (i.e. those measuring events per 1000 residents) have been age- and sex-adjusted using Manitoba population rates and an indirect method of standardization. Due to rounding, column totals may not equal overall totals.

[2] Short stay inpatient care refers to the 147,817 separations with lengths of stay ranging from 1 to 59 days made by Manitoba residents at hospitals both in and out of province.

[3] Inpatient care was categorized into relevant clinical categories of care. Adult surgical care includes inpatient but not outpatient surgery. Pediatric care includes both surgical and medical types of care. Rates of psychiatric care do not include separations from Eden, Selkirk and Brandon Mental Health Centres; consequently they underreport psychiatric utilization by non-Winnipeg residents.

TABLE 18 (cont'd.)

REGIONAL USE OF HOSPITAL RESOURCES:

USE OF SHORT STAY INPATIENT CARE BY TYPE OF CARE AND LOCATION OF SERVICE

1991/92

	TYPE AND LOCATION	Central	Eastman	Interlake	Norman	Parklands	Thompson	Westman	Winnipeg	Non-Winnipeg Comparison	Manitoba
Number of hospital separations per 1000 resident	ADULT SURG										
	in region	14	6	5	21	12	17	22	28	14	22
	out: Wpg	15	24	27	17	11	24	6	N/A	16	7
	out: not Wpg	2	1	<1	2	7	2	1	1	2	1
	ADULT MED										
	in region	56	53	55	104	79	120	73	36	68	50
	out: Wpg	10	16	19	13	6	22	4	N/A	11	5
	out: not Wpg	7	6	4	8	11	8	5	4	6	5
	ADULT PSYCH										
	in region	3	2	2	6	4	3	4	3	3	3
	out: Wpg	<1	1	1	<1	<1	<1	<1	N/A	1	<1
	out: not Wpg	<1	<1	<1	<1	1	<1	<1	<1	<1	<1
	PEDIATRIC										
	in region	12	7	7	23	31	23	17	8	15	11
	out: Wpg	4	6	6	3	2	7	1	N/A	4	2
	out: not Wpg	1	1	1	1	3	2	2	1	2	1
	OBSTETRIC										
	in region	15	7	7	23	20	26	18	19	16	18
	out: Wpg	7	16	13	3	3	13	1	N/A	8	3
	out: not Wpg	2	1	<1	2	3	2	1	<1	1	1

TABLE 18 (cont'd.)

REGIONAL USE OF HOSPITAL RESOURCES:

USE OF SHORT STAY INPATIENT CARE BY TYPE OF CARE AND LOCATION OF SERVICE

1991/92

	TYPE AND LOCATION	Central	Eastman	Interlake	Norman	Parklands	Thompson	Westman	Winnipeg	Non-Winnipeg Comparison	Manitoba
Average length of stay per hospital separation	ADULT SURG										
	in region	7.1	5.2	6.0	5.4	6.8	5.4	8.1	7.9	7.0	7.7
	out: Wpg	7.7	7.7	8.1	8.9	8.0	8.2	8.7	N/A	8.0	8.0
	out: not Wpg	7.3	7.0	8.3	6.2	7.8	5.7	7.1	7.8	7.3	7.5
	ADULT MED										
	in region	7.4	7.0	6.6	5.6	6.8	3.5	7.3	9.0	6.7	7.7
	out: Wpg	7.2	7.7	8.2	8.0	8.9	8.9	8.2	N/A	8.0	8.0
	out: not Wpg	6.0	5.7	5.7	4.5	5.9	3.6	6.0	5.2	5.7	5.4
	ADULT PSYCH										
	in region	10.0	7.5	8.0	8.7	7.1	3.6	10.4	19.1	8.8	15.0
	out: Wpg	16.3	18.8	20.6	23.7	20.8	18.1	17.1	N/A	19.2	19.2
	out: not Wpg	9.4	4.4	9.1	5.7	8.8	6.8	8.5	9.4	8.0	8.6
	PEDIATRIC										
	in region	2.9	3.3	2.1	3.4	4.7	3.0	2.8	3.9	3.2	3.5
	out: Wpg	4.7	4.7	4.0	6.1	5.8	6.1	5.8	N/A	5.0	5.0
	out: not Wpg	3.6	2.8	3.8	4.7	3.6	3.0	3.1	3.4	3.3	3.4
	OBSTETRIC										
	in region	3.5	3.1	2.8	3.1	3.5	3.1	3.6	3.1	3.3	3.2
	out: Wpg	3.4	3.1	3.3	4.2	4.3	4.8	4.7	N/A	3.6	3.6
	out: not Wpg	3.8	2.7	2.9	3.6	3.5	3.0	3.0	2.9	3.3	3.1

TABLE 18 (cont'd.)

REGIONAL USE OF HOSPITAL RESOURCES:

USE OF SHORT STAY INPATIENT CARE BY TYPE OF CARE AND LOCATION OF SERVICE

1991/92

Number of days of hospital care per 1000 residents

TYPE AND LOCATION	Central	Eastman	Interlake	Norman	Parklands	Thompson	Westman	Winnipeg	Non-Winnipeg Comparison	Manitoba
ADULT SURG										
in region	99	34	28	123	72	114	165	224	95	169
out: Wpg	115	185	214	161	86	226	53	N/A	129	55
out: not Wpg	14	10	4	16	51	11	9	5	15	9
ADULT MED										
in region	405	383	363	647	498	554	506	330	451	383
out: Wpg	71	124	155	108	50	220	31	N/A	87	37
out: not Wpg	38	34	21	40	59	39	30	19	35	26
ADULT PSYCH										
in region	27	18	15	50	31	10	39	66	27	50
out: Wpg	6	22	23	12	6	8	2	N/A	11	5
out: not Wpg	4	1	3	2	5	3	2	2	3	2
PEDIATRIC										
in region	33	23	14	77	145	70	49	32	49	40
out: Wpg	19	27	24	20	13	40	8	N/A	21	10
out: not Wpg	4	3	3	7	12	6	5	3	5	4
OBSTETRIC										
in region	54	23	20	73	71	82	67	60	52	57
out: Wpg	23	50	43	12	12	61	3	N/A	29	11
out: not Wpg	6	3	1	7	12	6	4	1	5	3

4.4 Long Stay Inpatient Care

TABLE 19

REGIONAL USE OF HOSPITAL RESOURCES:[1]

USE OF LONG STAY INPATIENT CARE[2]

1991/92

	Central	Eastman	Interlake	Norman	Parkland	Thompson	Westman	Winnipeg	Non-Winnipeg Comparison	Manitoba
Number of residents	94,484	85,180	71,936	24,952	46,056	45,019	117,724	655,055	485,351	1,140,406
Number of persons hospitalized per 1000 residents	2	2	2	3	3	2	2	3	2	3
Number of hospital separations per 1000 residents	3	2	2	3	3	3	2	4	3	3
Average length of stay per hospital separation	151	139	142	163	164	177	176	195	159	183
Number of days of hospital care per 1000 residents	378	330	328	533	479	502	428	719	402	580

[1] Population-based rates (i.e. those measuring events per 1000 residents) have been age- and sex-adjusted using Manitoba population rates and an indirect method of standardization.

[2] Long stay inpatient care refers to the 3,627 separations lasting 60 days or longer made by Manitoba residents at hospitals both in and out of province.

TABLE 20

REGIONAL USE OF HOSPITAL RESOURCES:

USE OF LONG STAY INPATIENT CARE[1] BY AGE & SEX OF RESIDENTS[2]

1991/92

	AGE & SEX GROUP	Central	Eastman	Interlake	Norman	Parklands	Thompson	Westman	Winnipeg	Non-Winnipeg Comparison	Manitoba
Number of residents		94,484	85,180	71,936	24,952	46,056	45,019	117,724	655,055	485,351	1,140,406
Number of persons hospitalized per 1000 residents	MALES										
	0-64	1	1	1	1	1	1	<1	1	1	1
	65-74	4	5	5	6	6	12	7	10	6	8
	75+	23	25	23	34	30	16	22	37	24	30
	FEMALES										
	0-64	1	<1	<1	1	1	1	1	1	1	1
	65-74	5	8	4	9	7	10	5	8	6	7
	75+	28	24	21	32	27	4	27	33	26	30
Number of hospital separations per 1000 residents	MALES										
	0-64	1	1	1	1	1	1	<1	1	1	1
	65-74	4	5	5	6	6	21	7	11	6	9
	75+	25	26	26	37	31	16	23	39	26	32
	FEMALES										
	0-64	1	<1	<1	1	1	1	1	1	1	1
	65-74	6	9	5	9	7	10	6	8	6	8
	75+	30	24	22	35	29	4	27	34	27	31

[1] Long stay inpatient care refers to the 3,627 separations lasting 60 days or longer made by Manitoba residents at hospitals both in and out of province.

[2] Age- and sex-specific rates are crude rates (i.e. not age- and sex-adjusted) and are calculated using the relevant age- and sex-specific population as the denominator. Because the denominator for each category is not the total population, the rates may be used for direct comparison but cannot be summed.

TABLE 20 (cont'd.)

REGIONAL USE OF HOSPITAL RESOURCES:

USE OF LONG STAY INPATIENT CARE BY AGE & SEX OF RESIDENTS

1991/92

	AGE & SEX GROUP	Central	Eastman	Interlake	Norman	Parklands	Thompson	Westman	Winnipeg	Non-Winnipeg Comparison	Manitoba
	75+	144	163	133	211	140	435	137	200	149	180
	FEMALES										
	0-64	129	142	276	85	110	81	137	153	137	148
	65-74	155	98	109	140	157	108	117	177	127	160
	75+	166	141	139	208	218	1921	236	215	198	209
Number of days of hospital care per 1000 residents	MALES										
	0-64	75	58	127	88	79	77	77	227	82	165
	65-74	588	949	454	588	747	2,815	783	1,803	758	1,330
	75+	3,607	4,231	3,497	7,868	4,321	7,011	3,121	7,796	3,808	5,802
	FEMALES										
	0-64	85	54	116	69	117	67	96	161	88	132
	65-74	866	844	495	1,232	1,165	1,094	668	1,497	799	1,215
	75+	4,885	3,457	2,998	7,289	6,334	8,198	6,318	7,321	5,284	6,466

TABLE 21

REGIONAL USE OF HOSPITAL RESOURCES:[1]

USE OF LONG STAY INPATIENT CARE[2] BY LENGTH OF STAY[3]

1991/92

	LENGTH OF STAY	Central	Eastman	Interlake	Norman	Parklands	Thompson	Westman	Winnipeg	Non-Winnipeg Comparison	Manitoba
Number of residents		94,484	85,180	71,936	24,952	46,056	45,019	117,724	655,055	485,351	1,140,406
Number of persons hospitalized per 1000 residents	60-89 DAYS	1	1	1	1	1	1	1	1	1	1
	90-179 DAYS	1	1	1	1	1	1	1	1	1	1
	180-365 DAYS	<1	<1	<1	1	<1	<1	<1	1	<1	1
	>365 DAYS	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Number of hospital separations per 1000 residents	60-89 DAYS	1	1	1	1	1	1	1	1	1	1
	90-179 DAYS	1	1	1	1	1	1	1	1	1	1
	180-365 DAYS	<1	<1	<1	1	<1	<1	<1	1	<1	1
	>365 DAYS	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	TOTAL	3	2	2	3	3	3	2	4	3	3
Average length of stay per hospital separation[4]	60-89 DAYS	72	72	71	71	74	72	72	72	72	72
	90-179 DAYS	125	126	119	111	118	112	124	123	122	123
	180-365 DAYS	257	238	226	247	253	250	266	257	254	256
	>365 DAYS	507	542	790	704	502	1006	693	709	625	687
	AVERAGE	151	139	142	163	164	177	176	195	159	183

[1] Population-based rates (i.e. those measuring events per 1000 residents) have been age- and sex-adjusted using Manitoba population rates and an indirect method of standardization. Due to rounding, column totals may not equal overall totals.

[2] Long stay inpatient care refers to the 3,627 separations lasting 60 days or longer made by Manitoba residents at hospitals both in and out of province.

[3] Long stay separations were grouped into the following categories: 60 to 89 days (40 percent of long stay separations); 90 to 179 days (33 percent); 180 to 365 days (18 percent); and over 365 days (10 percent).

[4] For certain categories, values for average length of stay per hospital separation were based on a small number of cases.

TABLE 21 (cont'd.)

REGIONAL USE OF HOSPITAL RESOURCES:

USE OF LONG STAY INPATIENT CARE BY LENGTH OF STAY

1991/92

	LENGTH OF STAY	Central	Eastman	Interlake	Norman	Parklands	Thompson	Westman	Winnipeg	Non-Winnipeg Comparison	Manitoba
Number of days of hospital care per 1000 residents	60-89 DAYS	71	77	80	90	84	101	77	100	78	91
	90-179 DAYS	117	104	91	115	126	74	93	147	104	128
	180-365 DAYS	112	69	68	146	109	38	118	176	101	143
	>365 DAYS	78	78	89	181	161	280	140	296	119	219
	TOTAL	378	330	328	533	479	502	428	719	402	580

TABLE 22

REGIONAL USE OF HOSPITAL RESOURCES:[1]

USE OF LONG STAY INPATIENT CARE[2] BY LEVEL OF CARE RECEIVED[3]

1991/92

	LEVEL OF CARE	Central	Eastman	Interlake	Norman	Parklands	Thompson	Westman	Winnipeg	Non-Winnipeg Comparison	Manitoba
Number of residents		94,484	85,180	71,936	24,952	46,056	45,019	117,724	655,055	485,351	1,140,406
Number of persons hospitalized per 1000 residents	TEACHING	<1	1	1	<1	<1	1	<1	1	<1	1
	URBAN	<1	<1	<1	<1	<1	<1	1	1	<1	1
	MAJOR RURAL	1	1	<1	3	2	<1	<1	<1	1	<1
	OTHER RURAL	1	1	1	<1	1	1	1	<1	1	<1
	CHRONIC	<1	<1	<1	<1	<1	<1	<1	1	<1	<1
	OUT OF PROV	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Number of hospital separations per 1000 residents	TEACHING	<1	1	1	<1	<1	1	<1	1	<1	1
	URBAN	<1	<1	<1	<1	<1	<1	1	2	<1	1
	MAJOR RURAL	1	1	<1	3	2	<1	<1	<1	1	<1
	OTHER RURAL	1	1	1	<1	1	1	1	<1	1	<1
	CHRONIC	<1	<1	<1	<1	<1	<1	<1	1	<1	<1
	OUT OF PROV	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	TOTAL	3	2	2	3	3	3	2	4	3	3

[1] Population-based rates (i.e. those measuring events per 1000 residents) have been age- and sex-adjusted using Manitoba population rates and an indirect method of standardization. Due to rounding, column totals may not equal overall totals.

[2] Long stay inpatient care refers to the 3,627 separations lasting 60 days or longer made by Manitoba residents at hospitals both in and out of province.

[3] Hospitals were grouped according to their size, level of specialization, and environment in order to permit analyses by level of hospital care. Further details are given in Section 2.2 and Appendix A.

TABLE 22 (cont'd.)

REGIONAL USE OF HOSPITAL RESOURCES:

USE OF LONG STAY INPATIENT CARE BY LEVEL OF CARE RECEIVED

1991/92

	LEVEL OF CARE	Central	Eastman	Interlake	Norman	Parklands	Thompson	Westman	Winnipeg	Non-Winnipeg Comparison	Manitoba
Average length of stay per hospital separation[4]	TEACHING	119	122	109	93	88	86	110	176	109	165
	URBAN	93	109	126	60	93	76	207	162	181	166
	MAJOR RURAL	164	162	207	184	181	95	99	166	174	174
	OTHER RURAL	151	113	122	61	151	501	144	253	147	152
	CHRONIC	263	245	243	---	187	188	325	316	269	311
	OUT OF PROV	---	---	138	77	108	---	80	89	98	93
	TOTAL	151	139	142	163	164	177	176	195	159	183
Number of days of hospital care per 1000 residents	TEACHING	44	76	66	41	20	100	20	258	44	166
	URBAN	9	21	45	4	7	26	204	245	79	173
	MAJOR RURAL	174	104	82	504	324	31	2	4	122	56
	OTHER RURAL	135	83	98	4	96	410	145	8	123	60
	CHRONIC	8	48	37	<1	9	24	39	201	28	125
	OUT OF PROV	<1	<1	2	3	5	<1	1	1	1	1
	TOTAL	378	330	328	533	479	502	428	719	402	580

[4] For certain categories, values for average length of stay per hospital separation were based on a small number of cases. For regions that had no admissions in a given category, average length of stay was not calculated.

TABLE 23

REGIONAL USE OF HOSPITAL RESOURCES[1]:

USE OF LONG STAY INPATIENT CARE[2] BY LOCATION OF SERVICE[3]

1991/92

	LOCATION OF CARE	Central	Eastman	Interlake	Norman	Parklands	Thompson	Westman	Winnipeg	Non-Winnipeg Comparison	Manitoba
Number of residents		94,484	85,180	71,936	24,952	46,056	45,019	117,724	655,055	485,351	1,140,406
Number of persons hospitalized per 1000 residents	IN REGION	2	1	1	2	2	1	2	3	2	3
	OUT: WPG	<1	1	1	<1	<1	1	<1	N/A	1	<1
	OUT: NOT WPG	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Number of hospital separations per 1000 residents	IN REGION	2	1	1	3	3	1	2	4	2	3
	OUT: WPG	1	1	1	<1	<1	1	<1	N/A	1	<1
	OUT: NOT WPG	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	TOTAL	3	2	2	3	3	3	2	4	3	3
Average length of stay per hospital separation[4]	IN REGION	161	138	149	179	174	376	183	195	172	188
	OUT: WPG	122	143	133	89	108	91	123	N/A	125	125
	OUT: NOT WPG	91	86	198	168	86	---	122	191	112	159
	AVERAGE	151	139	142	163	164	177	176	195	159	183

[1] Population-based rates (i.e. those measuring events per 1000 residents) have been age- and sex-adjusted using Manitoba population rates and an indirect method of standardization. Due to rounding, column totals may not equal overall totals.

[2] Long stay inpatient care refers to the 3,627 separations lasting 60 days or longer by Manitoba residents at hospitals both in and out of province.

[3] Location of service refers to the site of care delivery in relation to patient region of residence.

[4] For certain categories, values for average length of stay per hospital separation were based on a small number of cases. For regions that had no admissions in a given category, average length of stay was not calculated.

TABLE 23 (cont'd.)

REGIONAL USE OF HOSPITAL RESOURCES:

USE OF LONG STAY INPATIENT CARE BY LOCATION OF SERVICE

1991/92

	LOCATION OF CARE	Central	Eastman	Interlake	Norman	Parklands	Thompson	Westman	Winnipeg	Non-Winnipeg Comparison	Manitoba
Number of days of hospital care per 1000 residents	IN REGION	312	178	171	469	435	340	390	705	320	536
	OUT: WPG	61	135	144	41	36	101	33	N/A	76	33
	OUT: NOT WPG	8	5	8	19	9	0	6	15	7	12
	TOTAL	378	330	328	533	479	502	428	719	402	580

APPENDIX A

HOSPITALS CLASSIFIED BY LEVEL OF CARE
(plus number of rated beds and interprovincial per diem charges for 1991-92)

Level of Care/Role	Hospital Name	Number	Rated Beds	$ Per Diem
TEACHING	Health Sciences Centre	0016	1,084	781.00
	St. Boniface	0005	617	762.50
	Sub-Total/Average		1,701	771.75
URBAN COMMUNITY	Brandon	0001	291	483.00
	Concordia	0009	136	407.35
	Grace	0003	301	365.90
	Misericordia	0004	409	441.00
	Seven Oaks	0011	326	438.20
	Victoria	0007	246	421.70
	Sub-Total/Average		1,709	426.19
MAJOR RURAL	Dauphin	0122	105	341.70
	Flin Flon	0134	100	401.30
	Morden	0153	48	308.40
	Portage	0162	104	264.50
	Selkirk	0173	75	408.00
	Steinbach	0110	60	270.45
	Swan River	0177	68	263.80
	The Pas	0170	84	576.40
	Thompson	0187	100	491.15
	Winkler	0109	57	299.50
	Sub-Total/Average		801	362.52
INTERMEDIATE RURAL (Continues next page)	Altona	0102	32	225.60
	Beausejour	0107	30	212.70
	Carman	0116	30	288.10
	Churchill Health Centre	0130	31	720.15
	Gimli-Johnson Memorial	0146	35	309.40
	Minnedosa	0152	35	358.80

Role	Hospital Name	Number	Rated Beds	$ Per Diem
INTERMEDIATE	Neepawa	0158	38	236.65
RURAL	Souris	0175	30	219.75
(Cont'd)	Ste. Rose	0172	68	298.95
	Virden	0180	32	288.45
	Sub-Total/Average		361	315.85
	Arborg	0103	16	353.50
	Ashern-Lakeshore	0178	16	333.20
	Baldur	0106	16	243.50
	Birtle	0171	19	303.65
	Boissevain	0113	12	325.00
	Carberry-Fox Memorial	0135	29	220.40
	Crystal City-Rock Lake	0119	16	345.75
	Deloraine-South West Health District	0123	18	241.75
	Emerson	0131	12	336.45
SMALL	Erickson	0129	12	189.05
RURAL	Eriksdale-E.M. Crowe Memorial	0128	17	300.50
(Continues	Gladstone-Seven Regions	0138	20	428.65
next page)	Glenboro	0139	14	390.60
	Grandview	0140	18	318.55
	Hamiota	0143	21	261.95
	Hodgson-Percy E. Moore	0210	16	235.60
	Killarney-Tri Lake H.C.	0148	26	246.30
	McCreary-Alonsa	0150	13	401.65
	Melita-Wilson Memorial	0184	11	324.00
	Morris	0154	33	302.80
	Notre Dame	0159	10	342.80
	Pinawa	0163	17	338.55
	Pine Falls	0161	35	333.05
	Rivers-Riverdale	0166	16	328.35

Role	Hospital Name	Number	Rated Beds	$ Per Diem
SMALL RURAL (Cont'd)	Roblin	0165	25	218.35
	Russell	0169	38	205.80
	Ste. Anne	0179	21	295.85
	St. Claude	0182	12	363.60
	St. Pierre-Desalaberry	0124	16	265.80
	Shoal Lake-Strathclair	0174	23	294.90
	Stonewall-Dr. Evelyn Memorial	0176	18	263.45
	Swan Lake-Lorne Memorial	0147	22	291.45
	Teulon-Hunter Memorial	0144	20	295.20
	Treherne-Tiger Hills Health District	0183	18	326.20
	Vita	0181	11	222.60
	Wawanesa	0186	9	338.40
	Winnipegosis	0118	18	274.65
	Sub-Total/Average		684	300.05
SMALL MULTI-USE FACILITIES	Benito	0108	9	373.45
	MacGregor-North Norfolk	0156	6	258.05
	Manitou-Pembina	0151	14	422.15
	Reston	0164	17	316.55
	Rossburn	0167	10	274.85
	Whitemouth	0185	6	442.20
	Sub-Total/Average		62	347.88
NORTHERN, ISOLATED FACILITIES	Gillam	0136	10	526.10
	Leaf Rapids	0155	8	487.45
	Lynn Lake	0149	25	652.30
	Norway House	0212	16	259.50
	Snow Lake	0111	4	545.80
	Sub-Total/Average		63	494.23

Role	Hospital Name	Number	Rated Beds	$ Per Diem
NURSING STATIONS	Berens River	0287	6	113.40
	Bloodvein	0288	2	113.40
	Brochet	0282	3	116.60
	Cross Lake	0271	4	113.40
	Garden Hill	0273	3	113.40
	God's Lake	0272	4	113.40
	Lac Brochet	0290	2	116.60
	Little Grand Rapids	0274	4	116.60
	Nelson House	0277	4	116.60
	Oxford House	0278	3	113.40
	Poplar River	0285	4	116.60
	Pukatawagan	0281	4	116.60
	Red Sucker Lake	0289	2	116.60
	St. Therese	0280	3	113.40
	Shamatawa	0284	4	116.60
	South Indian Lake	0283	6	116.60
	Split Lake	0279	4	116.60
	Wassagamack	0286	1	113.40
	Sub-Total/Average		63	115.18
CHRONIC AND REHABILITATION	Deer Lodge	0019	120	223.54
	Winnipeg Municipal	0006	337	275.90
	Rehabilitation Centre for Children	0017	20	357.90
	Adolescent Treatment Centre	0020	25	500.00
	Sub-Total/Average		502	339.34
PERSONAL CARE HOMES	Cartwright	0117	10	189.75
	Elkhorn	0127	8	202.65
	Hartney	0142	9	173.45
	Sub-Total/Average		27	188.62

Role	Hospital Name	Number	Rated Beds	$ Per Diem
OUT OF PROV	Information Not Available	-	-	-

MANITOBA CENTRE FOR HEALTH POLICY AND EVALUATION

Report List: January 1994

Number	Title and Author(s)
91-04-01	*Manitoba Health Care Studies and Their Policy Implications*, by Evelyn Shapiro
91-05-02	*Hospital Funding within the Health Care System: Moving Towards Effectiveness*, by Charlyn Black, M.D., Sc.D. and Norman Frohlich, Ph.D.
91-11-04	*Maternal Demographic Risk Factors and the Incidence of Low Birthweight, Manitoba 1979-1989*, by Cam Mustard, Sc.D.
92-10	*An Assessment of How Efficiently Manitoba's Major Hospitals Discharge Their Patients*, by Marni Brownell, Ph.D. and Noralou Roos, Ph.D.
93-01	*The Utilization of Prenatal Care and Relationship to Birthweight Outcome in Winnipeg, 1987-88*, by Cam Mustard, Sc.D.
93-02	*Assessing Quality of Care in Manitoba Personal Care Homes by Using Administrative Data to Monitor Outcomes*, by Evelyn Shapiro, M.A. and Robert B. Tate, M.Sc.

Population Health Information System (analyses for 1991/92 to be released in 1993/94)

Population Health: Health Status Indicators, by Marsha Cohen, M.D., F.R.C.P.C. and Leonard MacWilliam, M.Sc., M.N.R.M.

Socio-Economic Characteristics, by Norman Frohlich, Ph.D. and Cam Mustard, Sc.D.

Utilization of Hospital Resources, by Charlyn Black, M.D., Sc.D., Noralou Roos, Ph.D. and Charles Burchill, B.Sc., M.Sc.

Utilization of Personal Care Home Resources, by Carolyn DeCoster, R.N., M.B.A., Noralou Roos, Ph.D. and Bogdan Bogdanovic, B. Comm., B.A.

Utilization of Physician Resources, by Douglas Tataryn, Ph.D. and Noralou Roos, Ph.D.

For copies of these reports, please call or write:

Manitoba Centre for Health Policy and Evaluation
Department of Community Health Sciences, University of Manitoba
S101 - 750 Bannatyne Avenue
Winnipeg, Manitoba, Canada, R3E 0W3
Tel: 204-789-3657 Fax: 204-774-4290