

Health Status and Healthcare Use Patterns of Rural, Northern and Urban Manitobans: Is Romanow Right?

État de santé et habitudes de recours
aux services de soins de santé des Manitobains
des zones rurales, nordiques et urbaines :
Romanow a-t-il raison?



by PATRICIA J. MARTENS, PHD

*Manitoba Centre for Health Policy, Department of Community Health Sciences
University of Manitoba, Winnipeg, MB*

THE NEED TO KNOW TEAM

*A project funded through Canadian Institutes of Health Research (CIHR) from 2001–2006,
comprising high-level planners from each of Manitoba's non-Winnipeg regional health author-
ities, Manitoba Health and MCHP researchers*

RANDY FRANSOO, MSC

*Manitoba Centre for Health Policy, Department of Community Health Sciences
University of Manitoba, Winnipeg, MB*

CHARLES BURCHILL, MSC

*Manitoba Centre for Health Policy, Department of Community Health Sciences
University of Manitoba, Winnipeg, MB*

ELAINE BURLAND, MSC

*Manitoba Centre for Health Policy, Department of Community Health Sciences
University of Manitoba, Winnipeg, MB*

Abstract

Objective: To compare health status and healthcare services use of rural, northern and urban Manitobans.

Method: Using anonymized administrative claims data derived from the Population Health Research Data Repository housed at the Manitoba Centre for Health Policy, four Manitoba regions were compared – Winnipeg, Brandon, Rural South and North – for 1996/97–2000/01. Indicators include mortality and morbidity, ambulatory physician visit and specialist consultation rates, prevention/screening rates, selected surgery rates (cardiac catheterization, coronary artery bypass graft surgery, hip replacement) and “discretionary” surgery rates (tonsillectomy/adenoidectomy, Caesarean section, hysterectomy). Rates were annualized, directly standardized to the 1996 provincial population, and statistically tested for differences among the regions using Hotelling’s T^2 statistic.

Results: Mortality and morbidity are high in the North, but the Rural South is average (except for high rates of injury mortality and stroke). Rural South and North have low ambulatory physician visits and specialist consultation rates, but high hospitalization rates compared to Brandon and Winnipeg. In prevention/screening rates, Rural South is variable and the North is low. For surgery rates, Rural South is variable, North is average, Brandon has below-average surgical rates but high rates of discretionary procedures, and Winnipeg has high surgical rates but low discretionary procedures. Thus, “urban” is not necessarily synonymous with good health and better access to services, nor is “rural” or “remote” synonymous with poor health and inadequate healthcare.

Résumé

Objectif : Comparer l'état de santé et le recours aux services de soins de santé des Manitobains des zones rurales, nordiques et urbaines.

Méthode : À l'aide de données administratives anonymisées tirées du *Population Health Research Data Repository* du Manitoba Centre for Health Policy, on a comparé quatre régions du Manitoba, soit celles de Winnipeg, de Brandon, du Sud rural et du Nord, pour la période de 1996-1997 à 2000-2001. Les indicateurs comprennent la mortalité et la morbidité, les taux de visites ambulatoires de médecins et de consulta-

tion de spécialistes, les taux de dépistage et de prévention, ainsi que la fréquence de certaines chirurgies (cathétérisme cardiaque, pontage aortocoronarien, remplacement de hanche) et de chirurgies non urgentes (amygdalectomie/adénoïdectomie, césarienne, hystérectomie). Les taux ont été annualisés, normalisés selon l'âge de la population provinciale en 1996 et testés pour déceler les différences statistiquement significatives avec T^2 de Hotelling.

Résultats : Les taux de mortalité et de morbidité sont élevés dans le Nord, mais moyens dans le Sud rural (à l'exception des accidents vasculaires cérébraux et des taux élevés de mortalité imputable aux blessures). Le Sud rural et le Nord présentent des taux faibles de visites ambulatoires de médecins et de consultation de spécialistes, mais des taux d'hospitalisation élevés comparativement à Brandon et à Winnipeg. Quant aux taux de prévention et de dépistage, ils sont variables dans le Sud rural et faibles dans le Nord. Pour ce qui est des taux de chirurgie, ils sont variables dans le Sud rural et moyens dans le Nord; Brandon, par contre, affiche des taux de chirurgie en deçà de la moyenne mais des taux élevés de procédures non urgentes, tandis que Winnipeg présente des taux élevés de chirurgie mais des taux faibles de procédures non urgentes. Ainsi donc, « urbain » n'est pas nécessairement synonyme de bonne santé ou de meilleur accès aux services, pas plus que « rural » ou « région éloignée » n'est synonyme de mauvaise santé ou de soins de santé inadéquats.

THE ROMANOW REPORT (COMMISSION ON THE FUTURE OF HEALTH CARE 2002: 159), a landmark report on the Canadian healthcare system, states that “people in rural and remote communities have poorer health status than Canadians who live in larger centres. Access to healthcare also is a problem, not only because of distances, but because these communities struggle to attract and keep nurses, doctors and other health care providers.” The purpose of this paper is to examine the truth of this statement. Do people living in rural and northern Manitoba reflect Romanow's picture compared to people living in the two main urban centres of Manitoba, Winnipeg (the capital) and Brandon?

The overall health status of Canadian rural residents has been compared with those who live in urban areas. Statistics Canada (2001) data show that predominantly rural populations fare worse than predominantly urban populations. Life expectancy is lower in rural areas, whereas total mortality, circulatory and cancer-related deaths, and unintentional injury-related deaths are all higher. The Canadian Community Health Survey (CCHS) 2000–2001 also shows poorer self-reported health in rural and remote areas, as well as underservicing of healthcare needs (Mitura and Bollman 2003). These survey data are measuring self-perceived health status and self-reported access to healthcare.

An alternative way to measure both health status and healthcare use is through administrative claims databases. The underlying assumption of equitable healthcare is that it reflects health status: the “less healthy” a regional population, the higher the need for healthcare services. In this study, the concept of overall regional health status is measured by the premature mortality rate (PMR), or age- and sex-adjusted rate of death before the age of 75 years. PMR is considered the best single measure to reflect the health status of a regional population, being highly associated with morbidity and with self-rated health (Carstairs and Morris 1991; Eyles et al. 1991; Eyles and Birch 1993; Reid et al. 2002) as well as with socio-economic risk factors (Martens et al. 2002a). As this association implies that populations with high PMR have poorer health status (i.e., are “less healthy”), one would expect to see higher rates of health services use by these populations under a universal healthcare system.

Researchers have long observed geographical variation in rates of health services use, including surgical procedures (Wennberg et al. 2002; Roos and Roos 1982; Guadagnoli et al. 2001; Gentleman et al. 1996; Birkmeyer et al. 1998). The difficult question then becomes, “what is the right rate?” Gentleman et al. (1996) ranked 39 surgical procedures in order of variation of rates by the degree to which the procedure was deemed “discretionary.” They defined “discretionary” as those procedures that may not be necessary at all, where there is no general agreement about indications (such as hysterectomy for non-malignant conditions of the uterus), or those for which alternative, non-surgical treatments are available. The 13 procedures with the greatest variation were all primarily “discretionary,” whereas those with the lowest variation were primarily “non-discretionary.” Tonsillectomy with adenoidectomy, hysterectomy and Caesarean section surgeries (used in this study) were within the top six in terms of the index of variation. Birkmeyer et al. (1998) also investigated the variation in common surgical rates and rated coronary artery bypass graft surgery and total hip replacement as having “intermediate” variation profiles, noting that these are among the conditions where doctors may disagree about some but not all diagnostic or treatment decisions. In contrast, those procedures having the highest variation reflect areas of substantial disagreement about diagnosis and treatment.

The Manitoba Centre for Health Policy (MCHP), an academic unit of the Department of Community Health Sciences, Faculty of Medicine, University of Manitoba, undertakes health services research based on anonymized administrative claims data used in the universally provided provincial health insurance plan. The results presented in this paper represent findings from research conducted by *The Need to Know* Team. This Team is funded by the Canadian Institutes of Health Research (CIHR) and comprises MCHP researchers, high-level planners from each of the non-Winnipeg regional health authorities (RHAs) of Manitoba and Manitoba Health representatives. One goal of the Team is to create new knowledge of relevance to rural and northern regions through collaborative research projects. The first was an

RHA “indicators atlas” to facilitate RHA planning and decision-making (Martens et al. 2003). For purposes of this paper, selected indicators from this report were compared to determine whether people living in rural and northern Manitoba experience poorer overall health, lower utilization of physicians and hospitals and less access to services than people living in the two main urban centres of Winnipeg and Brandon. In other words, is Romanow “right” in assuming poorer health and lack of services in rural and remote areas of Canada?

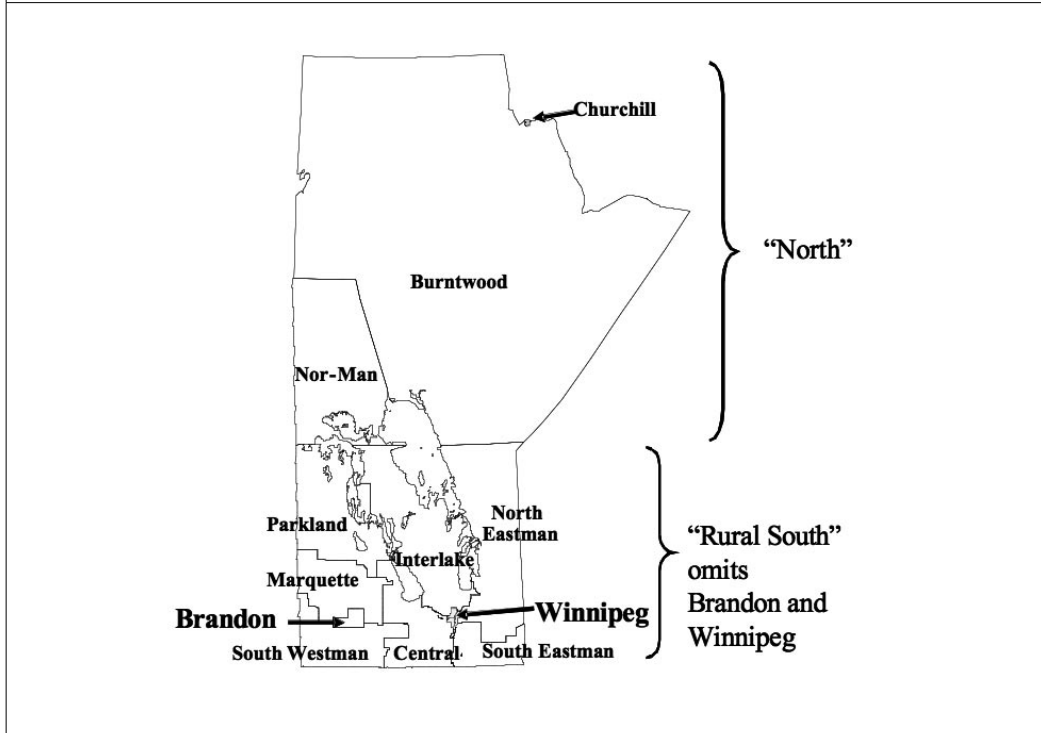
Methods

Geographical regions and population counts

This study included the Manitoba health registry population for fiscal years 1995/96–2000/01 ($n=1,148,699$ in 2000). The 11 non-Winnipeg RHAs each have a Board of Directors overseeing the health services of the region (see Figure 1). Each RHA has remained intact since 1997, with the exception of Marquette and South Westman, which merged to become Assiniboine RHA in 2002. For this paper, rates are reported at the provincial level and by four areas: Winnipeg RHA (population 649,012), Brandon RHA (47,337) and the two aggregate areas called Rural South and North. The Rural South comprises the following RHAs: South Westman (34,029), Central (97,865), South Eastman (54,427), North Eastman (39,369), Interlake (74,944), Marquette (37,515) and Parkland (42,909). The North comprises Nor-Man (25,233), Burntwood (45,051) and Churchill (1,008) RHAs, all regions that are north of 53 degrees latitude.

Various definitions of rural, urban and remote exist in the literature. Many studies comparing health status and healthcare utilization across Canada use the “MIZ” (Metropolitan Area and Census Agglomeration Influence Zones) classification of census metropolitan area and census agglomerations (duPlessis et al. 2002). Although these may facilitate comparison from a different lens, the distribution of such zones in Manitoba has somewhat debatable face validity. Some census subdivisions in rural farming areas within relative proximity to the two urban centres of Winnipeg and Brandon are called “weak” or “no influence.” Other census subdivisions in the northern remote areas of Manitoba show “no influence” close to the city of Thompson, yet “moderate influence” in a large portion of the “wilderness area” of the north. This could potentially skew the data in ways that could dilute the effect of “rural” and “remote” in terms of geographical access to healthcare services. Thus, we are using the RHA divisions outside the two major urban centres of Winnipeg and Brandon to describe geographical locations as either Rural South or North.

FIGURE 1. The twelve RHAs of Manitoba, showing the comparison groups of North, Rural South, plus the two urban centres of Winnipeg and Brandon



Sources of data for the research

Anonymized individual-level records of all residents of Manitoba (including First Nations peoples) were used for this study and were obtained from the Population Health Research Data Repository housed at MCHP. This Repository contains such databases as medical billing claims, hospital discharge abstracts and vital statistics (mortality) linkable at the individual level. All files are de-identified, with names and addresses removed prior to use by MCHP, but the geographical location and demographic information such as age and sex are available. Ethical approval for the study was obtained from the Health Research Ethics Board of the Faculty of Medicine, and was reviewed by the Health Information Privacy Committee of Manitoba.

Indicators and statistical tests for comparison

Various indicators were selected to represent regional mortality, morbidity and health-care use (prevention/screening, physician and hospital use, surgical procedure rates).

All rates are population-based, with total service use divided by total regional population, whether people used the service or not. As well, all service use is attributed back to the patients' region of residence, no matter where the service took place. For example, a northern resident hospitalized in Winnipeg would contribute to the "North" hospitalization rate. Rates are age- and sex-adjusted using direct standardization to the provincial population as of December 31, 1996. Rates are "annualized" by averaging over the number of years in the analyses (from one to five years, depending upon the indicator). Standardized rates by region are compared using Hotelling's T^2 statistic (Carriere and Roos 1997), with 99% confidence limits to control for multiple testing. Data management, programming and analyses were performed using SAS[®] software. Each indicator is also graphically compared to the provincial average as a percentage difference.

Age- and sex-adjusted mortality measures were derived from Vital Statistics for calendar years 1996–2000. Total mortality is the number of deaths per thousand; injury mortality is the number of deaths per thousand due to all categories of injury (using the ICD-9-CM coding system). The premature mortality rate (PMR) is the number of deaths per thousand aged 0 through 74. Potential Years of Life Lost (PYLL) is number of years of life "lost" per thousand aged 1 through 74. Life expectancy calculations are based on the methodology reported by Health and Welfare Canada (1992), but this statistic does not yield confidence intervals.

Age- and sex-adjusted morbidity measures include diabetes, stroke, acute myocardial infarction (AMI) and cancer. Measures of morbidity based on administrative claims data depend upon contact with the healthcare system. Thus, lack of access to providers (such as could be experienced in rural or remote settings) could potentially bias the estimate of morbidity and underestimate the prevalence. This bias could be especially problematic for the definition of diabetes, which may be influenced by ambulatory physician visits (see definition below), in areas served by salaried physicians. However, validation of the administrative database definition with self-reports demonstrates a high degree of validity for the diabetes algorithm, even in remote areas and First Nations communities (Lix et al. 2006; Martens et al. 2002b). Most family/general practice ambulatory physician visits in Manitoba are captured in the Repository through fee-for-service billings or through salaried physicians' "shadow billings." As well, virtually all contact with specialists, any contact with hospitals and all mortality rates (derived from Vital Statistics data) are complete for all residents of Manitoba, no matter where they live.

The diabetes treatment prevalence is the percentage of persons aged 20 through 79 years who, over a three-year period (1998/99–2000/01), had a diagnosis of diabetes (ICD-9-CM 250) in two or more physician visits (including specialist visits) or one hospitalization. The rates of AMI and stroke are the number of hospitalizations for AMI or stroke experienced per thousand aged 20+, for the years 1996/97–2000/01. Because an individual may suffer more than one heart attack or stroke, each

is counted as a separate event. Cancer incidence is the number of diagnoses of new cancer cases for 1996 through 2000 (including “in situ” tumours) per thousand residents (using ICD-9-CM codes 140–208, 230–239, excluding 173). Metastases are not included as incident cases, and only new primary cancers are counted. Tumour counts were provided by CancerCare Manitoba from its cancer registry, with statistical analyses by MCHP.

Measures of preventive and screening health services include immunizations (two-year, seven-year, adult influenza), cervical cancer screening tests (Papanicolaou, or “Pap,” tests) and mammography screening rates. The two- and seven-year childhood immunizations are the percentage of two-year-olds (born 1997/98–1998/99) and seven-year-olds (born 1992/93–1993/94) with a complete set of recommended immunizations, for children who have lived in Manitoba the entire period. The adult influenza (“flu”) immunization rate is the age- and sex-adjusted percentage of adults aged 65+ who received a flu shot during 2000/01. The breast cancer screening rate is the age-adjusted percentage of women aged 50–69 who had at least one mammogram in the two-year period 1999/00–2000/01 (as recommended by the Manitoba Breast Screening Program). The cervical cancer screening rate is the age-adjusted percentage of women aged 18–69 having at least one Pap test within a three-year period (1998/99–2000/01).

Hospitalizations and short-stay days are age- and sex-adjusted and are attributed back to the region of residence of the patient no matter where the hospitalization occurred. Hospital separation rates are the total number of inpatient and surgical outpatient hospitalizations per thousand residents. A hospital separation occurs any time a patient leaves because of discharge, transfer, sign-out against medical advice or death. Short-stay hospital days refer to the number of days used per thousand residents for stays less than 30 days. Any patient who stayed in hospital more than 365 days was assigned a length of stay of 365 days, to prevent a few cases from distorting the results.

Ambulatory physician visits include almost all contacts with physicians, excluding only those occurring while a person is an inpatient of a hospital. Visits to both general/family practitioners (GP/FP) and specialists are included. Contacts with fee-for-service physicians are reimbursed through Manitoba Health’s billing system. Salaried physicians are expected to submit “shadow bill” evaluation claims with diagnoses for the visit, but their salary does not depend upon these claims, resulting in possible underreporting. Moreover, nurse practitioner contacts are not recorded in the billing claims. Approximately 85% of salaried physician visits are captured in the claims data, but the percentage of salaried family physicians varies substantially by region: 7% in Winnipeg, 4% in Brandon and 38% in the rest of the province (Katz et al. 2004; Martens et al. 2005).

The specialist consultation rate, defined as the first visit to the consulting physician, is considered the best indicator of access to specialist care (Roos et al. 1999).

Ambulatory consultations occur when a client is referred by one physician to another because of the complexity, obscurity or seriousness of an illness, or because of a request for a second opinion. Most consultations are provided by specialists and are considered complete in the claims data.

Surgical indicators include age- and sex-adjusted rates of cardiac catheterization (1998/99–2000/01) and coronary artery bypass graft surgery (CABGS) as well as total hip replacement surgery (1996/97–2000/01). In Manitoba, these surgeries may be less accessible to those in rural or remote areas because tertiary care services are provided only in Winnipeg. “Discretionary” surgical procedures have been the subject of critical reviews because of potential overuse and wide variation in rates (Brownell 2002; Eldenburg and Waller 2001; Gross et al. 1999). The three “discretionary” procedures reported in this paper are tonsillectomy/adenoidectomy (age- and sex-adjusted rate per thousand aged 0–14 years, 1998/99–2000/01), Caesarean section (age-adjusted percentage of all births delivered by C-section, 1996/97–2000/01) and hysterectomy (age-adjusted rate per thousand women aged 25+, 1996/97–2000/01).

Results

Table 1 shows rates of the indicators for the Rural South, North, Winnipeg, and Brandon compared to the provincial rate. Figures 2 through 4 show area indicators as percentage differences from the provincial average. Indicator rates for each RHA are available separately online at MCHP’s website (www.umanitoba.ca/centres/mchp/) (Martens et al. 2003).

In Figure 3, ambulatory physician visit and specialist consultation rates are lower in the Rural South and the North compared to urban centres. However, one of the most remote RHAs within the North – Churchill – is an anomaly, with higher physician visit rates (5.43 visits per person per year, 99% CI 4.89–6.03) and specialist consultation rates (0.47 visits per person per year, 99% CI 0.39–0.57) than either the Manitoba average or the urban areas (Martens et al. 2003). Less than half (49.4%) of Churchill RHA residents’ visits to specialists in 2000/01 occurred in Winnipeg, in contrast to the two other northern RHAs (Burntwood 82.3%; Nor-Man 90.2%).

Mammography screening and Pap test percentages are shown in Table 1. However, it is also important to note changes over time. Mammography screening rates increased from 47.5% to 67.2% in the Rural South, from 25.8% to 54.7% in the North and from 52.1% to 60.1% in the urban centre of Winnipeg during the period from 1995/96–1996/97 to 1999/00–2000/01. Pap smear rates for cervical cancer screening over the two periods from 1995/96 to 2000/01 showed little change: Rural South (64.4% to 65.2%); North (51.6% to 51.0%); Winnipeg (71.5% to 72.4%); and Brandon (71.0% to 73.9%).

TABLE 1. Age- and sex-adjusted rates of mortality, morbidity, health services use and selected surgical procedures for Winnipeg, Brandon, Rural South, North compared to the Manitoba average

	ANNUALIZED RATES (99% CI)				
INDICATOR	RURAL SOUTH	BRANDON	WINNIPEG	NORTH	MANITOBA OVERALL
MORTALITY INDICATORS (1996-2000)					
Premature Mortality Rate (deaths per thousand aged 0-74 years)	3.23 (3.12-3.33)	3.20 (2.91-3.53)	3.27 (3.19-3.35)	4.71* (4.33-5.13)	3.32 (3.26-3.38)
Total mortality (deaths per thousand)	7.97 (7.82-8.12)	7.86 (7.43-8.33)	7.88 (7.76-8.00)	9.94* (9.29-10.63)	7.99 (7.90-8.08)
PYLL males (years lost per thousand age 1-74)	67.2 (63.3-71.4)	59.5 (50.0-70.8)	60.0* (57.3-62.9)	105.0* (93.9-117.6)	65.5 (63.3-67.8)
PYLL females (years lost per thousand age 1-74)	37.3 (34.4-40.4)	32.6 (26.2-40.7)	39.4 (37.2-41.8)	65.8* (56.9-76.0)	40.1 (38.4-41.9)
Injury mortality (deaths per thousand)	0.54* (0.50-0.59)	0.48 (0.37-0.61)	0.41* (0.38-0.44)	0.98* (0.82-1.16)	0.49 (9.47-0.52)
Life expectancy at birth males (years)†	75.9	76.1	76.3	71.7	75.9
Life expectancy at birth females (years)†	81.7	82.0	81.3	77.7	81.3
MORBIDITY INDICATORS					
Cancer (per thousand) 1996-2000	5.46* (5.33-5.60)	6.40* (6.00-6.83)	5.66 (5.55-5.76)	5.17 (4.74-5.64)	5.61 (5.53-5.69)

Table 1 continued

INDICATOR	ANNUALIZED RATES (99% CI)				
	RURAL SOUTH	BRANDON	WINNIPEG	NORTH	MANITOBA OVERALL
Diabetes (%) 1998/99-2000/01	5.43* (5.32-5.54)	5.39 (5.08-5.71)	5.30* (5.18-5.35)	11.10* (10.63-11.52)	5.60 (5.50-5.63)
AMI (per thousand) 1996/97-2000/01	2.30 (2.20-2.40)	2.70* (2.39-3.04)	2.08* (2.01-2.16)	2.90* (2.52-3.33)	2.22 (2.16-2.28)
Stroke (per thousand) 1996/97-2000/01	1.97* (1.88-2.06)	1.60 (1.41-1.90)	1.50* (1.44-1.57)	2.46* (2.10-2.89)	1.71 (1.66-1.77)
PREVENTION AND SCREENING					
2-year-old complete immunizations (% children born 1997/98-1998/99)	70.9 (69.7-72.1)	73.0 (69.5-76.7)	73.7* (72.7-74.6)	55.0* (52.7-57.4)	70.7 (70.0-71.4)
7-year-old complete immunizations (% children born 1992/93-1993/94)	77.0* (75.9-78.2)	77.0* (73.7-80.5)	75.1* (74.6-76.0)	50.2* (47.9-52.6)	73.3 (72.6-73.9)
Adult flu immunizations (%) 2000/01	52.7* (52.3-53.3)	58.9* (57.3-60.4)	56.2* (55.8-56.7)	40.4* (38.3-42.7)	54.7 (54.4-55.0)
Mammography screening (% of women aged 50-69 years) 1999/00-2000/01	67.2* (66.6-67.9)	71.7* (70.0-73.5)	60.1* (59.6-60.6)	54.7* (52.7-56.8)	62.8 (62.4-63.1)
Pap tests (% of women aged 18-69 years) 1998/99-2000/01	65.2* (64.8-65.5)	73.9* (73.0-74.8)	72.4* (72.2-72.6)	51.0* (50.1-51.9)	69.0 (68.9-69.2)

Health Status and Healthcare Use Patterns of Rural, Northern and Urban Manitobans

Table 1 continued

INDICATOR	ANNUALIZED RATES (99% CI)				
	RURAL SOUTH	BRANDON	WINNIPEG	NORTH	MANITOBA OVERALL
PHYSICIAN AND HOSPITAL VISITS					
Ambulatory physician visits (per person) 2000/01	4.29* (4.27-4.31)	5.08* (5.02-5.14)	5.10* (5.08-5.12)	4.45* (4.39-4.52)	4.78 (4.77-4.80)
Specialist consultations (per person) 2000/01	0.231* (0.229-0.234)	0.291* (0.283-0.298)	0.295* (0.293-0.298)	0.236* (0.229-0.243)	0.271 (0.269-0.272)
Hospitalizations (per thousand) 1999/00-2000/01	199.8* (197.7-201.9)	162.4* (157.5-167.4)	141.5* (140.4-142.7)	275.4* (267.0-284.1)	169.1 (168.0-170.2)
Short stay days (per thousand) 1999/00-2000/01	625.6* (614.17-636.6)	569.2* (541.5-598.3)	413.4* (407.1-419.9)	849.4* (807.3-893.6)	513.9 (508.4-519.6)
CARDIAC AND HIP SURGERIES					
Cardiac catheterization (per thousand) 1998/99-2000/01	2.66* (2.54-2.88)	2.18* (1.86-2.54)	3.11* (3.00-3.22)	2.99 (2.57-3.47)	2.91 (2.83-2.99)
CABGS (per thousand) 1996/97-2000/01	0.65* (0.61-0.70)	0.64 (0.52-0.79)	0.76* (0.72-0.80)	0.73 (0.58-0.91)	0.71 (0.68-0.74)
Hip replacement (per thousand) 1996/97-2000/01	0.72 (0.67-0.78)	0.57 (0.45-0.72)	0.71 (0.67-0.95)	0.63 (0.48-0.83)	0.71 (0.68-0.74)

Table 1 continued

INDICATOR	ANNUALIZED RATES (99% CI)				
	RURAL SOUTH	BRANDON	WINNIPEG	NORTH	MANITOBA OVERALL
DISCRETIONARY PROCEDURES					
Hysterectomy (per thousand women aged 25+) 1996/97-2000/01	5.62* (5.38-5.88)	6.07* (5.40-6.81)	4.54* (4.39-4.71)	4.87 (4.29-5.53)	4.96 (4.83-5.09)
Caesarean Section (% births) 1996/97-2000/01	17.0 (16.3-17.8)	19.2 (17.2-21.5)	17.3 (16.8-17.9)	18.2 (16.9-19.7)	17.4 (17.0-17.8)
Tonsillectomy/adenoid-ectomy (per thousand aged 0-14) 1998/99-2000/01	6.03* (5.65-6.44)	8.61* (7.31-10.15)	4.95* (4.67-5.26)	5.52 (4.83-6.30)	5.52 (5.30-5.75)

* an asterisk indicates that the rate or prevalence is statistically different (either higher or lower) than the Manitoba average (p<.05)

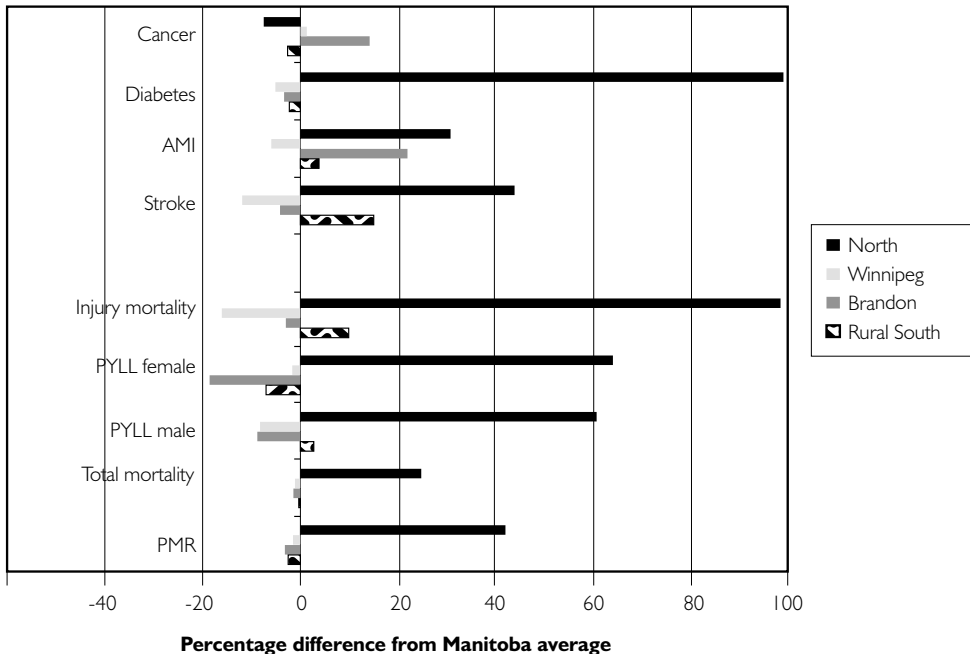
† life expectancy does not have statistical testing associated with it

Discussion

Use of the healthcare system should be guided by the underlying health status of a regional population – the poorer the health status, the higher one would expect to see the utilization rates of healthcare services. As well, under a universal healthcare system, one would expect to see universal access to whatever procedures are deemed necessary. No matter where a person lives, “necessary” access rates should reflect underlying morbidity.

Comparing the health status of urban, rural and northern Manitobans, the Romanow Report’s generalization of poorer health status for rural and remote Canadians does not necessarily hold true (see Figure 2). In some instances, the Rural South has similar mortality rates (PMR, total mortality, female PYLL), yet lower morbidity (cancer, diabetes) when compared to the urban centre of Winnipeg. On the other hand, Rural South has high injury mortality rates and male PYLL, as well as elevated hospitalization rates for AMI and stroke in comparison to Winnipeg. In

FIGURE 2. Comparison of area rates for mortality and morbidity indicators (North, Winnipeg, Brandon, Rural South) to Manitoba average*

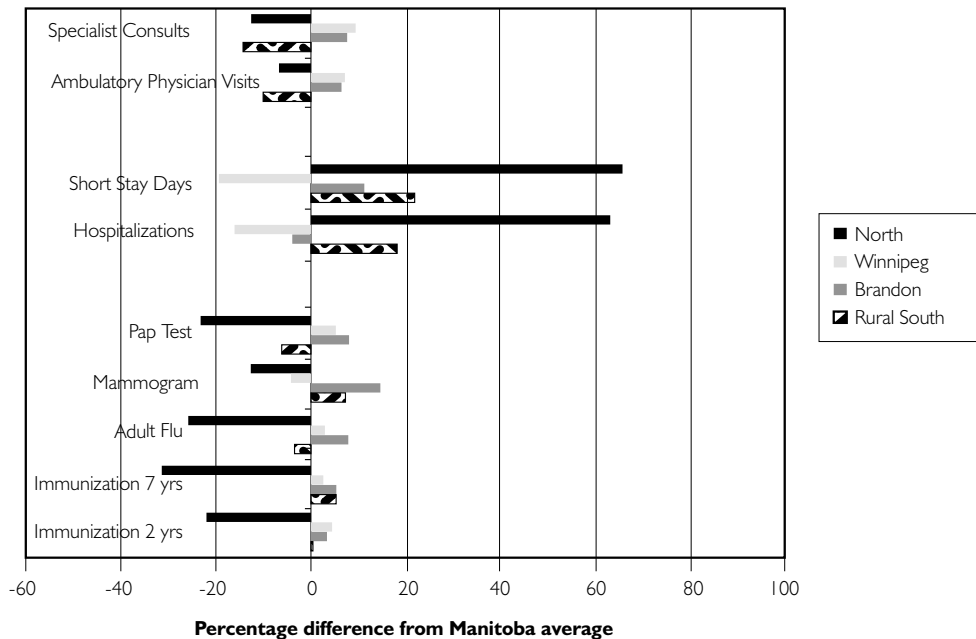


* The regional rate was divided by the Manitoba rate, multiplied by 100, and subtracted from 100. A difference of 40 means the regional rate was 40% higher than the provincial rate (i.e. 140% of the provincial rate), and -20 means the rate was 100-20, or 80% of the provincial rate.

contrast with the Rural South, the North has dramatically elevated mortality and morbidity rates compared to both urban centres, with the only exception being average cancer rates. Romanow’s comments about poorer health status are valid when concentrating on the most remote areas (i.e., North areas) of Manitoba. One interesting feature is the difference between the two urban centres of Manitoba: although Brandon residents show similar patterns to Winnipeg for most mortality and morbidity measures, they have higher rates of cancer and AMI, but much lower female PYLL. The degree of variation between the two urban centres is just as evident as the variation between Winnipeg and the Rural South.

Do rural and remote people have less access to healthcare services? Ambulatory physician visit and specialist consultation rates are lower in the Rural South and the North compared to urban centres. However, the northern remote RHA of Churchill has higher rates than urban areas, and a much higher proportion of visits to special-

FIGURE 3. Comparison of area rates for health services use indicators (North, Winnipeg, Brandon, Rural South) to Manitoba average*

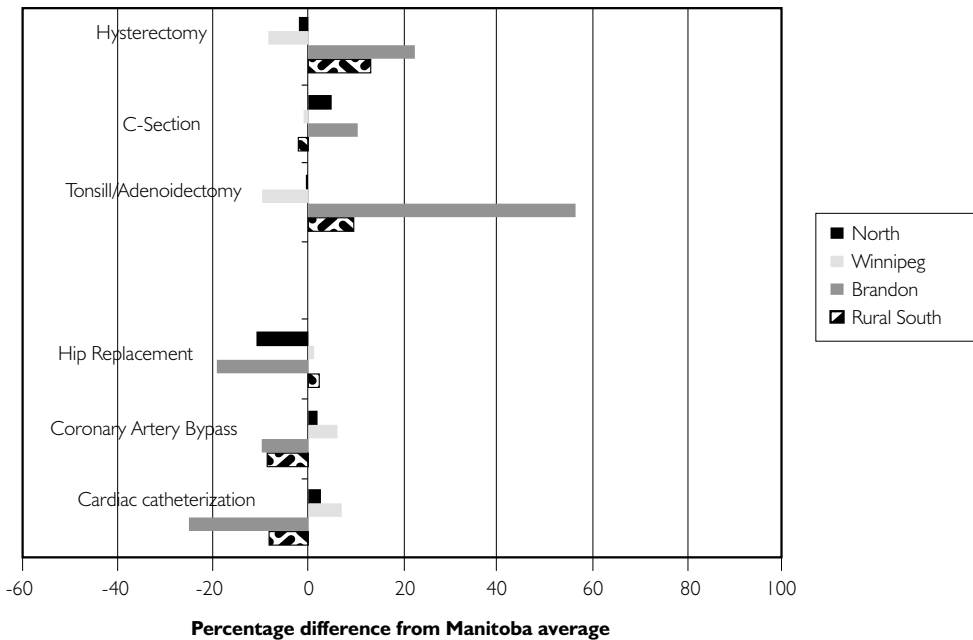


* The regional rate was divided by the Manitoba rate, multiplied by 100, and subtracted from 100. A difference of 40 means the regional rate was 40% higher than the provincial rate (i.e. 140% of the provincial rate), and -20 means the rate was 100-20, or 80% of the provincial rate.

ists occurring close to home. Churchill physician services (GP/FP and specialists) are provided through contract with the University of Manitoba's J.A. Hildes Northern Medical Unit, where salaried physicians and specialists hired through the unit provide services to very remote communities (both First Nations and others) consistently over the long term. This could be very different from remote communities, where the towns or the RHAs have difficulty hiring and retaining a resident physician for the long term. Different models of care in northern remote areas appear to affect access to services.

Both the Rural South and the North have elevated hospitalizations compared to the urban settings (see Figure 3). This finding may be due in part to concern for people living long distances from medical care (i.e., physicians may err on the side of caution). In the North, the high rate of hospitalization is also appropriate given the underlying morbidity burden. However, previous research has also shown that the hospital beds per capita are high in some parts of the Rural South despite average mortality/morbidity, and this may be another explanation for higher than expected

FIGURE 4. Comparison of area rates for selected surgical and discretionary procedures (North, Winnipeg, Brandon, Rural South) to Manitoba average*



* The regional rate was divided by the Manitoba rate, multiplied by 100, and subtracted from 100. A difference of 40 means the regional rate was 40% higher than the provincial rate (i.e. 140% of the provincial rate), and -20 means the rate was 100-20, or 80% of the provincial rate.

hospitalization rates for particular RHAs (Martens et al. 2003; Stewart et al. 2000; Martens et al. 2002c).

Do people in the rural and remote regions of Manitoba have less access to advanced surgeries, as Romanow suggests? Yes and no. Winnipeg experiences high rates of cardiac-related surgeries, but only average rates of hip replacement. Somewhat surprising are the North rates, where cardiac-related surgeries and hip replacement are all similar to the Manitoba average. This may or may not be the “right rate,” given underlying health concerns. High AMI rates in the North suggest the possible need for higher than average cardiac-related surgery rates.

Both the Rural South and Brandon experience lower, or at best, average rates of cardiac and hip procedures compared to Manitoba overall (see Figure 4). In part, this may be due to the overall better health status, but given the high AMI rate in Brandon, one would expect cardiac surgery rates to be high as well. In both the Rural

South and Brandon, discretionary procedure rates (i.e., procedures subject to critical reviews because of potential overuse or disagreement as to indications for surgery) tend to be elevated. In contrast, the cardiac and hip surgery rates tend to be lower than the provincial average. The North has a very different pattern, with average rates of discretionary procedures and cardiac surgery but low hip replacement rates. This finding may be due to access to various types of surgeons and hospitals in different areas of the province. That is, Rural South residents have higher rates of the procedures that can be done in primary and secondary rural hospitals (often by general surgeons), whereas urban residents have higher rates of services done in tertiary hospitals (usually by surgical specialists). The mixed pattern shown for North residents may reflect their more frequent referral to Winnipeg for secondary and tertiary care. More research is needed to understand the complex patterns in the Rural South and North.

Prevention and screening are considered good primary care, and in general, urban dwellers have higher rates. The North, with its high morbidity, shows a troubling pattern of low uptake of prevention and screening programs, which may be due in part to underrecording of these procedures in the health claims data. But it is also due to the fact that services are hard to access by remote dwellers. The Rural South is once again mixed – average to high childhood immunization and mammography, but low adult flu immunization and Pap smears. Notification systems, as well as accessibility, seem to increase the likelihood of rural/remote areas obtaining services. In Manitoba, the Manitoba Immunization Monitoring System is a database of childhood immunizations accessible by all physicians, public health nurses and hospitals to ensure access to records by all healthcare providers. As well, the Manitoba Breast Screening Program has a rural mobile screening unit and notification system for women aged 50–69. The success of this program for the Rural South and the North can be seen in the difference over time, with dramatic changes in mammography screening uptake in the rural and remote areas of the province (from 47.5% to 67.2% in the Rural South, from 25.8% to 54.7% in the North) to bring these rates close to or exceeding the urban rates. In contrast, the lack of a provincial screening program or mobile unit for cervical cancer screening is evident – rates throughout the province have shown very little change over time, and there is a large disparity between urban and rural/remote areas.

Is Romanow right in the case of Manitoba? Yes and no. “Urban” is not necessarily synonymous with superior health and healthcare services, nor is “rural” or “remote” synonymous with inadequate healthcare and poor health. Overwhelmingly, the Romanow view of poorer health status holds true for North residents, but not for residents of the Rural South, where their health status is sometimes better and sometimes worse than their urban counterparts. Distinction needs to be made between “rural” and “remote northern” when statements are made concerning health status.

The Romanow view of poorer access to healthcare is also too broad a generalization. People living in the North have extremely low prevention and screening rates

(even though mammography screening has shown huge increases over time), only slightly lower rates of physician visits (which, if anything, may be undercounted because salaried physician care and nurse practitioner care are undercounted in administrative claims data), very high hospitalization rates, average rates of surgical care and average rates of discretionary surgeries. This is a complex issue – healthcare may be “accessible” by differing degrees for differing services, with prevention/screening healthcare showing major problems, but secondary care such as hospital and surgical access showing reasonable rates. Decision-makers need to use creative approaches to increase accessibility to prevention programs, such as Manitoba’s successful mobile mammography screening units.

Rural South residents show lower rates of contact with physicians and specialists than their urban counterparts, and higher hospitalization rates – in some ways, similar to the North. But the prevention and screening rates for Rural South are quite similar to urban rates (and sometimes better, such as in mammography screening). The real concern lies in cardiac care rates being lower, and discretionary surgery rates higher, than urban rates. Access to care needs to be considered in light of access to appropriate care: does a higher than average discretionary surgery rate indicate too much access to care that is possibly less than optimal? The variation between hip surgery and cardiac surgery is also interesting. It appears as if the Rural South has appropriate access to certain types of specialist surgical care, but lower than appropriate access to other types. This finding could very well indicate problems with referral patterns to certain types of specialists, but needs further research to explore the anomalies. Once again, Romanow’s statement of the lack of access of rural residents needs a qualifier as to the type of healthcare that is being described.

In conclusion, further investigation into different models of care and creative approaches to healthcare services provision may be required in rural and northern areas to ensure equitable access throughout Canada. Rural and northern residents vary in both their health status and access to healthcare services, and overgeneralizations may not be useful in describing their situation.

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Correspondence may be directed to: Dr. Patricia J. Martens, Manitoba Centre for Health Policy, 4th Floor, Room 408, 727 McDermot Ave., Winnipeg, MB R3E 3P5; tel.: 204-789-3791; fax: 204-789-3910; email: Pat_Martens@cpe.umanitoba.ca.

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